



## State of Utah

### Department of Natural Resources

MICHAEL R. STYLER  
*Executive Director*

### Division of Oil, Gas & Mining

JOHN R. BAZA  
*Division Director*

JON M. HUNTSMAN, JR.  
*Governor*

GARY R. HERBERT  
*Lieutenant Governor*

February 2, 2006

Tom Mathison  
Shaw Environmental, Inc.  
2790 Mosside Blvd.  
Monroeville, PA 15146

Subject: Formal Approval of Notice of Intention to Commence Large Mining Operations and Form and Amount of Reclamation Surety, Shaw Environmental, Inc., Lime Peak Quarry, M/049/047, Utah County, Utah

Dear Mr. Mathison:

The Division of Gas and Mining approves the Notice of Intention to Conduct Large Mining Operations and the form and amount of reclamation surety for Lime Peak Quarry. The reclamation surety in the amount of \$106,800.00 is in the form of Certificates of Deposit issued by Regions Bank. Shaw Environmental, Inc. is now permitted to conduct mining operations at the Lime Peak Quarry.

Enclosed please find copies of the signed and executed Reclamation Contract and surety documents for your files. Also enclosed is a copy of the "approved" Notice of Intention to Commence Large Mining Operations for your files. If in the future, you wish to modify your mining and reclamation plan, please furnish a redlined and strikeout version of the page(s) you wish to change and indicate how these are to be incorporated into the current approved plan using Form MR-REV-att, which is located on the web at [www.dogm.utah.gov](http://www.dogm.utah.gov).

Thank you for your help and patience in finalizing this permitting action. Please call me if you have any questions in this regard.

Sincerely,

Susan M. White  
Mining Program Coordinator  
Minerals Regulatory Program

SMW:lk:pb

Enclosures: RC, Surety documents, Approved LMO

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FOR DIVISION USE ONLY

File #: M/049/047

Date Received: Dec 9 2005

DOGM Lead: L.M.K.

Permit Fee \$ 500.00 Ck # 187  
350 \$ 150

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING  
1594 West North Temple Suite 1210  
Box 145801  
Salt Lake City, Utah 84114-5801  
Telephone: (801) 538-5291 Fax: (801) 359-3940

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NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

The informational requirements in this form are based on provisions of the Mined Land Reclamation Act, Title 40-8, Utah Code Annotated 1953, General Rules and Rules of Practice and Procedures.

**This form applies only to mining operations which disturb or will disturb more than five acres at any given time.**

"MINING OPERATIONS" means those activities conducted on the surface of the land for the exploration for, development of, or extraction of a mineral deposit, including, but not limited to, surface mining and the surface effects of underground and in situ mining, on-site transportation, concentrating, milling, evaporation, and other primary processing.

"Mining operation" does not include: the extraction of sand, gravel, and rock aggregate; the extraction of oil and gas as defined in Chapter 6, Title 40; the extraction of geothermal steam; smelting or refining operations; off-site operations and transportation; or reconnaissance activities which will not cause significant surface resource disturbance or involve the use of mechanized earth-moving equipment such as bulldozers or backhoes.

**PLEASE NOTE:** *This form is to be used as a guideline in assembling the information necessary to satisfy the Large Mining Operations Notice of Intention requirements. **You will need extra space to provide a majority of the information requested.** Please provide the information on additional sheets and include cross-referenced page numbers as necessary. The Permittee / Operator may submit this information on an alternate form; however, the same or similar format must be used.*

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**I. Rule R647-4-104 - Operator(s), Surface and Mineral Owners**

The Permittee / Operator must provide the name, address and telephone number of the individual or company who will be responsible for the proposed operation. If a company is to be listed as the Permittee / Operator, then the name of the corporate officers need to be provided.

1. **Mine Name:** Lime Peak Quarry

2. **Name of Permittee/ Operator/ Applicant:** Shaw Environmental, Inc.

Company ( ) Corporation (☒) Partnership ( ) Individual ( )

A corporation must be registered with the State of Utah, Division of Corporations. Are you currently registered to do business in the State of Utah? ☐ Yes ☐ No

Business License # 5138937-0143

Registered Agent (as identified on your business license): CT Corporation Systems

Address: 50 West Broadway, Eighth Floor

Salt Lake City, UT 84101

Phone: 801-364-5101

Fax: \_\_\_\_\_

3. **Permanent Address:** 8501 North Mopac Expressway, Suite 310

Austin, TX 78759

Phone: 512-928-8051

Fax: 512-928-0077

4. **Company Representative** (or designated operator):

Name: ~~Tom Mathison~~ GARY PARKS

Title: Project Manager

Address: ~~2790 Mossdale Boulevard, Monroeville, PA 15146~~ 9201 E. DRY CREEK RD

Phone: ~~412-380-6207~~ 303-741-7398

Fax: ~~412-374-1486~~ 303-793-5222

CENTENNIAL, CO 80112

5. **Location of Operation:**

County(ies) See Attachment I - Text, page one

\_\_\_\_ 1/4 of \_\_\_\_ 1/4, Section: \_\_\_\_ Township: \_\_\_\_ Range: \_\_\_\_

\_\_\_\_ 1/4 of \_\_\_\_ 1/4, Section: \_\_\_\_ Township: \_\_\_\_ Range: \_\_\_\_

\_\_\_\_ 1/4 of \_\_\_\_ 1/4, Section: \_\_\_\_ Township: \_\_\_\_ Range: \_\_\_\_

The names of the surface and mineral owners for any areas which are to be impacted by mining must be provided to the Division. This list should include all private, state and federal ownership and the owners of lands immediately adjacent to the project areas.

6. **Ownership of the land surface** (circle all that apply):

Private (Fee), Public Domain (BLM), National Forest (USFS), State of Utah (SITLA) or other:

Name: Chief Consolidated Mining Company

Address: 1629 Locust Street, Philadelphia PA 19103

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

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**7. Owner(s) of record of the minerals to be mined** (circle all that apply):

Private (Fee), Public Domain (BLM), National Forest (USFS), State of Utah (SITLA) or other:

Name: Chief Consolidated Mining Company Address: 1629 Locust Street, Philadelphia PA 19103  
Name: \_\_\_\_\_ Address: \_\_\_\_\_  
Name: \_\_\_\_\_ Address: \_\_\_\_\_  
Name: \_\_\_\_\_ Address: \_\_\_\_\_

**8. BLM Lease or Project File Number(s) and/or USFS Assigned Project Number(s):** N/AUtah State Lease Number(s): N/AName of Lessee(s): N/A**9. Adjacent land owners:**

Name: Quest Capitol Corp. Address: 570 Granville Street, Suite 900, Vancouver BC V6C 3P1  
Name: U. S. Bureau of Land Mgmt. Address: 35 East 500 N. Fillmore UT 84631  
Name: \_\_\_\_\_ Address: \_\_\_\_\_  
Name: \_\_\_\_\_ Address: \_\_\_\_\_

**10. Have the land, mineral and adjacent land owners been notified in writing?**Yes x No \_\_\_\_\_

If no, why not? \_\_\_\_\_

**11. Does the Permittee / Operator have legal right to enter and conduct mining operations on the land covered by this notice?** Yes x No \_\_\_\_\_.**II. Rule R647-4-105 - Maps, Drawings & Photographs** All maps are included in the permit as Attachment II of this permit.**105.1 - Base Map**

A complete and correct topographic base map (or maps) with appropriate contour intervals must be submitted with this notice showing all of the items on the following checklist. The scale should be approximately 1 inch = 2,000 feet (preferably a USGS 7.5 minute series or equivalent topographic map where available). The map(s) must show the location of lands to be affected in sufficient detail to allow measurement of the proposed area of surface disturbance.

**Base Map Checklist**

Please check off each section to verify these features are included on the map(s) or explain why it is not applicable. Please add the map identification name or number which shows these features.

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Check

✓

- (a) Property boundaries of surface ownership of all lands which are to be affected by the mining operations;

Map ID

Figure 1✓

- (b) Perennial, intermittent, or ephemeral streams, springs and other bodies of water; roads, buildings, landing strips, electrical transmission lines, water wells, oil and gas pipelines, existing wells or boreholes, or other existing surface or subsurface facilities within 500 feet of the proposed mining operations;

Figure 1✓

- (c) Proposed route of access to the mining operations from nearest publicly maintained highway (Map scale appropriate to show access);

Figure 1✓

- (d) Known areas which have been previously impacted by mining or exploration activities within the proposed land affected;

Figure 2✓

- (e) Areas proposed to be disturbed or reclaimed over the life of the project or other suitable time period.

Figure 2/  
Figure 4

### 105.2 - Surface Facilities Map

#### Surface Facilities Map Checklist

Surface facilities maps should be provided at a scale of not less than 1" = 500'.

Please check off each section to verify these features are included on the map(s) or explain why it is not applicable. Please add the map identification name or number which shows these features.

Check

✓

- (a) Proposed surface facilities, including but not limited to: buildings, stationary mining/processing equipment, roads, utilities, power lines, proposed drainage control structures, and the location of topsoil storage areas, overburden/waste dumps, tailings or processed waste facilities, disposal areas for overburden, solid and liquid wastes, and wastewater discharge treatment and containment facilities;

Map ID

Figure 3✓

- (b) A border clearly outlining the extent of the surface area proposed to be affected by mining operations, and the number of acres proposed to be affected;

Figure 3✓

- (c) The location of known test borings, pits, or core holes.

Figure 3

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**105.3 - Additional Maps****Reclamation Treatments Map Checklist**

Please check off each section to verify these features are included on the map(s) or explain why it is not applicable. Please add the map identification name or number which shows these features.

Check

Map ID

- |   |     |  |                 |
|---|-----|--|-----------------|
| ✓ | (a) | Areas of the site to receive various reclamation treatments shaded, cross hatched or color coded to identify which reclamation treatments will be applied. Areas would include: buildings, stationary mining/processing equipment, roads, utilities, proposed drainage improvements or reconstruction, and sediment control structures, topsoil storage areas, waste dumps, tailings or processed waste facilities, disposal areas for overburden, solid and liquid wastes, ponds, and wastewater discharge, treatment and containment facilities. Reclamation treatments may include ripping, regrading, replacing soil, fertilizing, mulching, broadcast seeding, drill seeding, and hydroseeding: | <u>Figure 4</u> |
| ✓ | (b) | A border clearly outlining the extent of the area to be reclaimed after mining, the number of acres disturbed, and the number of acres proposed for reclamation:   | <u>Figure 4</u> |
| ✓ | (c) | Areas disturbed by this operation which are included in a request for a variance from the reclamation standards:   | <u>Figure 4</u> |
| ✓ | (d) | Highwalls which are proposed to remain steeper than 45 degrees and slopes which are proposed to remain steeper than 3 horizontal : 1 vertical.   | <u>Figure 4</u> |

**Note: Areas included in sections c & d will need to be referenced in the variance request section. Please shade or color code these areas on this map.**

Additional maps and cross sections may be required in accordance with Rule R647-4-105.3. Design drawings and typical cross-sections for each tailings pond, sediment pond, or other major drainage control structures must also be included.

Refer to Figure 5 for cross-sections of the fueling pad, Figure 6 for a cross-section of the roads to be constructed, and Figure 7 for cross-sections of the quarry waste pile.

**III. Rule R647-4-106 - Operation Plan**

**106.1 - Mineral(s) to be mined:** Rock Aggregates (lime stone)

**106.2 - Type of Operation Conducted:** See Attachment I - Text, page two

Describe the typical methods and procedures to be used in mining operations, on-site processing and concurrent reclamation. Include equipment descriptions where appropriate.

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**106.3 - Estimated Acreage**

Acreage listed here should match areas measured off the maps provided.

|   |                   |
|---|-------------------|
| Areas of actual mining:                   | 3.8 acres         |
| Overburden/waste dumps:                   | 8.8 acres         |
| Ore and product stockpiles:               | 12.6 acres        |
| Access/haul roads:                        | 3.3 acres         |
| Associated on-site processing facilities: | 1.22 acres        |
| Tailings disposal:                        | 8.8 acres         |
| Other - Please describe:                  | None              |
| <b>Total Acreage</b>                      | <b>24.7 acres</b> |

**106.4 - Nature of material including waste rock/overburden and estimated tonnage**

Describe the typical annual amount of the ore and waste rock/overburden to be generated, in cubic yards. Where does the waste material originate? What is the nature of the overburden/wastes (general chemistry/mineralogy and description of geologic origin)? Will it be in the form of fines or coarse material? What are the typical particle size and size fractions of the waste rock?

|   |                                     |          |
|---|-------------------------------------|----------|
| Thickness of overburden:                              | 2"-2 ft. in quarry area             | ft.      |
| Thickness of mineral deposit:                         | 450                                 | ft.      |
| Estimated annual volume of overburden:                | 1,230                               | cu. yds. |
| Estimated annual volume of tailings/reject materials: | 1,200                               | cu. yds. |
| Estimated annual volume of ore mined:                 | 120,000                             | cu. yds. |
| Overburden/waste description:                         | See Attachment I - Text, page three |          |

**106.5 - Existing soil types, location of plant growth material** See Attachment I-Text, page six

Specific information on existing soils to be disturbed by mining will be required. General soils information may not be sufficient.

Provide specific descriptions of the existing soil resources found in the area. Soil types should be identified along with depth and extent, especially those to be directly impacted by mining.

**Soils** - The plan shall include an Order 3 Soil Survey (or similar) and map. This information is needed to determine which soils are suitable for stockpiling for revegetation. This soil data may be available from the local Natural Resources Conservation Service office, or if on public lands, from the land management agency. The map needs to be of such scale that soil types can be accurately determined on the ground (see Attachment I).

(a) Each soil type to be disturbed needs to be field analyzed for the following:

Depth of soil material

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Volume (for stockpiling) \_\_\_\_\_ cu. yds.  
 Texture (field determination) \_\_\_\_\_  
 pH (field determination) \_\_\_\_\_  
 (cross reference with item 106.6)

- (b) Where there are problem soil areas (as determined from the field examination) laboratory analysis may be necessary. Soil samples to be sent to the laboratory for analysis need to be about one quart in size, properly labeled, and in plastic bags. Each of the soil horizons on some sites may need to be sampled. Soil sample locations need to be shown on the soils map. Soil analysis for these samples should include: texture, pH, Ec (conductivity), CEC (Cation Exchange Capacity), SAR, % Organic Matter, Total N, Available Phosphorus (as  $P_2O_5$ ), Potassium (as  $K_2O$ ), and acid/base potential.

**106.6 - Plan for protecting and redepositing existing soils** See Attachment I-Text, page six

Thickness of soil material to be salvaged and stockpiled: \_\_\_\_\_ 12 inches  
 Area from which soil material can be salvaged: (show on map) \_\_\_\_\_ 7.6 acres  
 Volume of soil to be stockpiled: \_\_\_\_\_ 12,250 cu. yds.  
 (cross reference with item 106.5 (a))

Describe how topsoil or subsoil material will be removed, stockpiled and protected.

**106.7 - Existing vegetative communities to establish revegetation success** See Attachment I-Text, page seven

**Vegetation** - The Permittee / Operator is required to return the land to a useful condition and reestablish at least 70 percent of the premining vegetation ground cover.

Provide the Division with a description of the plant communities growing onsite and the percent vegetation cover for each plant community located on the site. Describe the methodology used to obtain these values.

The percent ground cover is determined by sampling the vegetation type(s) on the areas to be mined (see Attachment I for suggested sampling methods).

- (a) Vegetation Survey - The following information needs to be completed based upon the vegetation survey: See Attachment I, page seven, for a discussion of the survey method used and the results of the survey.

Sampling method used \_\_\_\_\_  
 Number of plots or transects (10 minimum) \_\_\_\_\_

Ground Cover \_\_\_\_\_ Percent

Vegetation (perennial grass, forb and shrub cover) \_\_\_\_\_

Litter \_\_\_\_\_

Rock/rock fragments \_\_\_\_\_

Bare ground \_\_\_\_\_

Revegetation Requirement \_\_\_\_\_

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(70 percent of above vegetation figure) \_\_\_\_\_ %

Indicate the vegetation community(ies) found at the site.

List the predominant perennial species of vegetation growing in each vegetation community type.

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

- (b) Photographs - The Permittee / Operator may submit photographs (prints) of the site to show existing vegetation conditions. These photographs should show the general appearance and condition of the area to be affected and may be utilized for comparison upon reclamation of the site. Photographs should be clearly marked as to the location, orientation and the date they were taken.

Photographs of vegetation conditions are provided in Attachment V.

**106.8 - Depth to groundwater, overburden material & geologic setting** See Attachment I-Text, page eight

Describe the approximate depth to groundwater in the vicinity of the operation based on the completion of any monitoring or water wells in the area. Please show the location of these wells on the base map.

Depth to groundwater \_\_\_\_\_ 12 ft.

Provide a narrative description of the geology of the area and/or a geologic cross section.

**106.9 - Location and size of ore and waste stockpiles, tailings and treatment ponds, and discharges** See Attachment I-Text, page nine

Describe the location and size of any proposed waste/overburden dumps, stockpiles, tailings facilities and water storage or treatment ponds.

Describe how overburden material will be removed and stockpiled.

Describe how tailings, waste rock, rejected materials, etc. will be disposed of.

Describe the acreage and capacity of waste dumps, tailings ponds and water storage ponds to be constructed. All impoundments must include the necessary hydrologic calculations to determine if they are adequately sized to handle storm events.

Describe any proposed effluent discharge points (UPDES) and show their location on the surface facilities map. Give the proposed discharge rate and expected water quality. Attach chemical analyses of such discharge if available.

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IV. **R647-4-107 - Operation Practices** See Attachment I-Text, page ten

During operations, the Permittee / Operator shall conform to the practices listed under this section of the Minerals Rules unless the Division grants a variance in writing.

Describe measures taken to minimize hazards to public safety during mining operations regarding:

the closing or guarding of shafts and tunnels to prevent unauthorized or accidental entry in accordance with MSHA regulations;

the disposal of trash, scrap metal, wood and extraneous debris;

the plugging or capping of drill, core or other exploratory holes;

the posting of appropriate warning signs in locations of public access to operations;

the construction of berms, fences or barriers above highwalls or other excavations.

If any of these safety measures are unnecessary, please explain why.

Describe measures taken to avoid or minimize environmental damages to natural drainage channels which will be affected by this mining operation.

Describe measures taken to control and minimize sediment and erosion on areas affected by this mining operation. Describe measures being taken to prevent sediment from leaving the disturbed area.

Identify any potentially deleterious materials that may be stored on site (including fuel, oil, processing chemicals, etc.) and describe how they will be handled and stored.

Describe the measures taken to salvage and store soils to be used in reclamation.

Describe how stockpiled topsoil will be protected from erosion and further impact.

Please describe any reclamation to be done during active mining operations prior to final closure. Reference these areas on a map.

V. **Rule R647-108 - Hole Plugging Requirements** See Attachment I-Text, page 12

All drill holes which will not eventually be consumed by mining must be plugged according to the methods listed in this section. Describe the location of any aquifers encountered by drilling and the method to be used to plug such water containing holes. Describe the method to be used for plugging holes not containing water.

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**VI. Rule R647-109 - Impact Statement****109.1 - Surface and groundwater systems** See Attachment I-Text, page 13

Describe impacts to surface or groundwater which could be caused by this mining operation. Describe how these impacts will be monitored and mitigated. The appropriate groundwater and stormwater control permits need to be obtained from the Division of Water Quality. Please reference any such permits.

**109.2 - Wildlife habitat and endangered species** See Attachment I-Text, page 14

Describe the impacts on wildlife habitat associated with this operation. Describe any impacts to big game species found in the area. Describe any impacts to riparian areas. Describe any impacts this operation will have on waterfowl (fly-over, temporary resident or permanent resident). List any threatened or endangered wildlife species found in the area. Describe impacts to threatened or endangered species and their habitats. Describe measures to be taken to minimize or mitigate any impacts to wildlife or endangered species.

**109.3 - Existing soil and plant resources** See Attachment I-Text, page 15

Describe impacts to the existing soil and plant resources in the area to be affected by mining operations. Describe impacts to riparian or wetland areas which will be affected by mining. Describe impacts to threatened or endangered plant species. Describe measures to be taken to minimize or mitigate any impacts to soil and plant resources.

**109.4 - Slope stability, erosion control, air quality, public health & safety** See Attachment I-Text, page 16

Describe the impacts this mining operation will have on slope stability, erosion, air quality, public health and safety. Include descriptions of highwall and slope configurations and their stability. Air quality permits from the Utah Division of Air Quality may be required for mining operations. Please reference any such permits. Describe measures to be taken to minimize or mitigate impacts to slope stability, erosion, air quality, or public health and safety.

**VII. Rule R647-4-110 - RECLAMATION PLAN** See Attachment I-Text, page 17**110.1 - Current land use and postmining land use**

Current or premining land use(s) [other than mining]: \_\_\_\_\_

List future post-mine land-use(s) proposed: \_\_\_\_\_

(Develop the reclamation plan to meet proposed post-mine land use.)

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**110.2 - Reclamation of roads, highwalls, slopes, leach pads, dumps, etc.** See Attachment I-Text, page 17

Describe how the following features will be reclaimed: roads, highwalls, slopes, impoundments, drainages and natural drainage patterns, pits, ponds, dumps, shafts, adits, 8 drill holes and leach pads. Describe the configuration of these features after final reclamation. Describe the rinsing and neutralization of leach pads associated with final decommissioning.

Describe how roads will be reclaimed. Road reclamation may include: regrading cut and fill sections, ripping the road surface with a dozer, topsoil replacement, construction of water bars, construction of traffic control berms or ditches, and reseeding.

Describe how highwalls will be reclaimed. Highwall reclamation may include: drilling and blasting, backfilling, regrading, topsoil replacement, and reseeding.

Describe how slopes will be reclaimed. Slope reclamation may include: regrading to a 3 horizontal : 1 vertical (3h:1v) configuration, topsoil replacement, contour ripping, pitting, and reseeding.

Describe how impoundments, pits and ponds will be reclaimed. Include the final elevations and final disposition of the drainage in and around the impoundment. If the impoundment, pit, or pond is intended to be left as part of the post-mining land use, then an agreement with the land managing agency/owner is required. Structures to remain must be left in a stable condition.

Include the final size of the impoundment, pit, pond in acre-feet of storage and the capacity of the spillway to safely pass storm events.

Impoundments, pits, and ponds, which are not approved as part of the post mining land use shall be reclaimed, free draining, and the natural drainage patterns restored.

Describe how drainages will be reclaimed. Drainage reclamation would include: the reestablishment of a natural drainage pattern which fits in with the upstream and downstream cross-section of existing drainage in the vicinity of the disturbance; the reestablishment of a stable channel in the reclaimed reach of channel, using the necessary armoring to prevent excessive erosion and downstream sedimentation.

Include cross-sections and profiles of reestablished channels to demonstrate compatibility with existing drainage characteristics.

Describe how waste dumps will be reclaimed. Waste dump reclamation may include regrading to a 3h:1v configuration, topsoil replacement, mulch or biosolids applications, contour ripping or pitting, and reseeding. Characterization of the physical and chemical nature of the waste dump materials should be provided.

Describe how shafts and adits will be reclaimed. Reclamation of shafts may include: backfilling, installation of a metal grate, installation of a reinforced concrete cap, topsoil replacement and reseeding. Reclamation of adits may include: backfilling,

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installation of a block wall, installation of a metal grate, topsoil replacement and reseeding.

Describe how drill holes will be reclaimed. Drill hole reclamation must be consistent with the rules for plugging drill holes (R647-4-108). Reclamation of plugged drill holes may include topsoil replacement and reseeding.

Describe how tailings areas will be reclaimed. Tailings reclamation may include: dewatering, neutralization, placement of cap materials, placement of subsoil materials, topsoil replacement and reseeding. Characterization of the physical and chemical makeup of the tailings material should be provided.

Describe how leach pads will be reclaimed. Reclamation of leached materials may include: neutralization or leached materials, rinsing of leached materials, dewatering leached materials, regrading slopes of leached materials to 3h:1v, extending pad liners, placement of capping materials, placement of subsoil materials, mulch or biosolids application, topsoil replacement and reseeding. Characterization of the physical and chemical makeup of the leached materials should be provided. Post closure monitoring and collection of drain down fluids should also be addressed.

**NOTE:** The Minerals Rules require overall highwall angles of no more than 45° at final reclamation unless a variance is granted. All dump or fill slopes should be left at an angle of 3h:1v or less. Any slopes steeper than 3h:1v must be reclaimed using state-of-the-art surface stabilization technology. Pit benches exceeding 35 feet in width should be topsoiled, or covered with fines, and revegetated.

Describe the final disposition of any stockpiled materials on site at the time of final reclamation.

**110.3 - Surface facilities to be left** See Attachment I-Text, page 19

Describe any surface facilities which are proposed to remain on-site after reclamation (buildings, utilities, roads, drainage structures, impoundments, etc.). Describe their post-mine application. *Justification for not reclaiming these facilities must be included in the variance request section.*

**110.4 - Treatment, location and disposition of deleterious materials** See Attachment I-Text, page 19

Describe the nature and extent of any deleterious or acid forming materials located on-site. Describe how these materials will be neutralized, removed, or disposed of on site. Describe how buildings, foundations, trash and other waste materials will be disposed of.

**110.5 - Revegetation planting program and topsoil redistribution** See Attachment I-Text, page 20

Describe the revegetation tasks to be performed in detail. For example, will ripping, mulching, fertilizing, seeding and scarifying of these areas be performed and if so, how will this be accomplished? Correlate this information with the Reclamation Treatments Map.

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a) Soil Material Replacement

In order to reestablish the required ground cover, one to two feet (depending on underlying material) of suitable soil material usually has to be redistributed on the areas to be reseeded. If the stockpiled soil isn't sufficient for this, soil borrow areas will need to be located.

Describe the volume of soils and approximate depth of soil cover to be used in reclamation. Describe the source of these soils and provide an agronomic analysis of the soils. If soils will not be used describe the alternative material or amendments to be applied in lieu of soils. Describe the methods used to transport and place soils.

b) Seed Bed Preparation

Describe how the seedbed will be prepared and equipment to be used. The Division recommends ripping or disking to a minimum of 12 inches and leaving the seed bed surface in as roughened condition as possible to enhance water harvesting, erosion control and revegetation success. Compacted surfaces such as roads and pads should be deep ripped a minimum of 18 inches.

c) Seed Mixture - List the species to be seeded:

Provide a seed mix listing adaptable plant species and the rate of seeding that will be used at the site for reclamation. More than one seed mix may be needed, depending upon the areas to be reclaimed. Keep the proposed post-mining land use in mind when developing seed mixes.

**Example**

| <u>Species Name</u>  | <u>Common Name</u> | <u>Seeding Rate<br/>(lbs Pure Live Seed/Acre)</u> |
|----------------------|--------------------|---|
| _____                | _____              | _____   |
| Total lbs/acre _____ |                    |   |

(The Division recommends seeding 12-15 lbs./acre of native and introduced adaptable species of grass, forb, and browse seed for drill seeding and 15-20 lbs./acre for broadcast or hydro seeding. The Division can provide assistance in developing reclamation seed mixes if requested).

d) Seeding Method

Describe method of planting the seed. The Division recommends planting the seed with a rangeland or farm drill. If broadcast seeding, harrow or rake the seed 1/4 to 1/2 inch into the soil. Fall is the preferred time to seed.

e) Fertilization

Describe fertilization method, type(s) and application rate (if needed).

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f) Other Revegetation Procedures

Please describe other reclamation procedures, such as mulching, biosolids application, irrigation, hydroseeding, etc., that may be planned.

**VIII. Rule R647-4-112 VARIANCE**

The Permittee / Operator may request a variance from Rules R647-4-107 (Operation Practices), R647-4-108 (Hole Plugging), and R647-4-111 (Reclamation Practices) by submitting the following information:

- 1.11 the rule(s) which a variance is requested from; (rule number and content)
- 1.12 a description of the specific variance requested and a description of the area affected by the variance request; show this area on the Reclamation Treatments Map(s).
- 1.13 justification for the variance;
- 1.14 alternate methods or measures to be utilized in the variance area.

Variance requests are considered on a site-specific basis. For each variance requested, attach a narrative which addresses the four items listed above.

**IX. Rule R647-4-113 - SURETY** See Attachment VII - Surety

A Reclamation surety must be provided to the Division prior to final approval of this application. In calculating this amount, include the following major tasks:

- 1) Clean-up and removal of structures.
- 2) Backfilling, grading and contouring.
- 3) Soil material redistribution and stabilization.
- 4) Revegetation (preparation, seeding, mulching).
- 5) Safety gates, berms, barriers, signs, etc.
- 6) Demolition, removal or burial of facilities/structures, regrading/ripping of facilities areas.
- 7) Regrading, ripping of waste dump tops and slopes.
- 8) Regrading/ripping stockpiles, pads and other compacted areas.
- 9) Ripping pit floors and access roads.
- 10) Drainage reconstruction.
- 11) Mulching, fertilizing and seeding the affected areas.
- 12) General site clean up and removal of trash and debris.
- 13) Removal/disposal of hazardous materials.
- 14) Equipment mobilization.
- 15) Supervision during reclamation.

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To assist the Division in determining a reasonable surety amount, please attach a reclamation cost estimate which addresses each of the above steps. The areas and treatments included in the reclamation treatments map should correspond with items included in the reclamation cost estimate. The reclamation costs used by the Division must be third party costs.  
See Attachment VII

X. **PERMIT FEE** [Mined Land Reclamation Act 40-8-7(i)]

The Utah Mined Land Reclamation Act of 1975 [40-8-7 (i)] provides the authority for the assessment of permitting fees. Commencing with the 1998 fiscal year (July 1 - June 30), and revised July 1, 2002, annual permit fees are assessed to new and existing notices of intention and annually thereafter until the project disturbances are successfully reclaimed by the Permittee / Operator and released by the Division.

***Large mining permits require an initial submission fee and annual fee of \$500.00 for surface disturbance of 50 or less acres, or a \$1,000.00 fee for surface disturbance greater than 50 acres (see page six Section III, Rule R647-4-106.3 for estimated disturbance calculation). The appropriate fee MUST accompany this application or it cannot be processed by the Division.***

***PLEASE NOTE:*** If you are expanding from a small mining operation to a large mining operation, the appropriate large mine permit fee, less the annual \$150.00 small mine fee (if already paid) ***MUST*** accompany this application.

XI. **SIGNATURE REQUIREMENT**

I hereby certify that the foregoing is true and correct. (Note: This form must be signed by the owner or officer of the company/corporation who is authorized to bind the company/corporation).

Signature of Permittee / Operator/Applicant: L. Joe Boyer

Name (typed or print): L. JOE BOYER

Title/Position (if applicable): SR. VICE PRESIDENT

Date: 12/1/05

**PLEASE NOTE:**

Section 40-8-13(2) of the Mined Land Reclamation Act provides for maintenance of confidentiality concerning certain portions of this report. Please check to see that any information desired to be held confidential is so labeled and included on separate sheets or maps.

Only information relating to the location, size or nature of the deposit may be protected as confidential.

Confidential Information Enclosed: ( ) Yes ( ) No

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**ATTACHMENT I**

**Text**

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## **Attachment I**

### **I. Rule R647-4-104 - Operator(s), Surface and Mineral Owners**

#### **5. Location of Operation:**

County: Utah County

Portions of: the west 1/2 of the southwest 1/4 of section 4; the east 1/2 of the southeast 1/4 of the southeast 1/4 of section 5; and the northeast 1/4 of the northeast 1/4, the northwest 1/4 of the southeast 1/4 of the northeast 1/4, the northeast 1/4 of the southwest 1/4 of the northeast 1/4, and the east 1/2 of the northwest 1/4 of the northeast 1/4 of section 8, Township 10 South, Range 2 West, SLBM, Utah County, UT

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## **Attachment I**

### **III. Rule R647-4-106 – Operation Plan**

*Describe the typical methods and procedures to be used in mining operations, on-site processing and concurrent reclamation. Include equipment descriptions where appropriate.*

#### **106.2 - Type of Operation Conducted:**

In general, the operations will include blasting of rock in the quarry area, hauling of blasted materials to the rock processing area, crushing and screening of rock in the rock processing area, and storage of aggregate products in the rock storage area. The following paragraphs provide more detailed descriptions of the activities.

**Quarry Operations:** The purpose of the quarry operations is to extract rock suitable for use as aggregates for the Eureka Mills Superfund Site. Rock will be extracted through blasting. All blasting will be conducted by an individual certified in accordance with Utah Administrative Rule R645-105. Blasting explosives will be placed in 12-40 foot deep holes drilled in the rock material using a mobile drill rig. After blasting, the loose rock will be inspected by a geologist, registered as a professional in the State of Utah and experienced in the rock formations present at Lime Peak. The purpose of the inspection will be to determine the formation of the loose rock and to provide a visual examination of the rock quality and suitability. Material determined to be unsuitable will be considered waste material. Based on previous quarrying operations at the Lime Peak Quarry, it is estimated that less than 1% of the blasted material will be waste rock. Unsuitable materials will be removed and placed in waste areas. Unsuitable material will consist of mineralization zones, which may contain high concentrations of arsenic, or material of poor quality, based on visual examination. Suitable material will be bulldozed to loading areas. At loading areas, wheel loaders will place the material into 20 to 30 ton off-road rock trucks, which will transport the material to the rock processing area.

**Rock Processing Operations:** At the rock processing area, loose rock will be crushed and sorted using a rock crusher and sieves, arranged to produce the material specifications. As materials are produced, there will be located at various locations within the rock storage area. Transport trucks will intermittently arrive at the rock storage area to be loaded with the aggregates for transport to the project site.

**Other Site Facilities:** Dust will be controlled through the use of water and an aqueous solution of magnesium chloride. A water tower will be established at the rock storage area to fill water trucks. A fueling station will also be established in the rock storage area. All truck and construction equipment fueling operations will occur within the fueling station. The fueling station will be lined with 40 mil geomembrane and a berm will be constructed to contain, at a minimum, the volume of any fixed fuel containers located in the fueling station or the volume of fueling trucks used, whichever is greater.

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## Attachment I

### 106.4 – Nature of material including waste rock/overburden and estimated tonnage

*Describe the typical annual amount of the ore and waste rock/overburden to be generated, in cubic yards. Where does the waste material originate? What is the nature of the overburden/wastes (general chemistry/mineralogy and description of geologic origin)? Will it be in the form of fines or coarse material? What are the typical particle size and size fractions of the waste rock?*

The average annual volume of usable material to be produced is estimated to be 120,000 cubic yards. It is estimated that less than 1% of the material quarried will be waste. Material to be wasted will include areas that have been mineralized along a fault line, resulting in the potential for relatively high concentration of metals, which is undesirable. These areas will be avoided. During the quarry operations, a registered professional geologist, familiar with the rock formations in this area, will be on-site monitoring the quality of the blasted material. Material that appears to be unsuitable, due to mineralization or other visible defects, will be considered waste. It is anticipated that this waste will be coarse material with some fines, although it is not possible to predict the gradation of the waste at this time.

Usable material will be transported to the processing area. At the processing area, several aggregate products will be produced, with specific gradation requirements. It is anticipated that a portion of the fines generated during the processing operation will not be used in the products and placed in a pile. However, it is anticipated that this material will be used during the project, either as select fill or as fill in areas where out of spec material is acceptable for use.

As described in Section 106.5, overburden soils in the quarry area are a very cobbly to stony loam, with a thickness of 10-20 inches. Due to the steep and rugged terrain in the undisturbed areas of the quarry, it is not practical to strip and segregate the overburden. During quarrying, the overburden will be incorporated into the quarried material and transported to the processing material, and use for the project.

The predominant formation to be quarried is the Gardison Formation, a medium to dark gray fossiliferous limestone and dolomite known to be about 450 feet thick. At the bottom of the quarry, the lower contact of the Gardison rests atop the Fitchville Formation, a gray massive dolomite 150 feet thick. The limestone and dolomite in the Eureka area are part of more than 6000 feet of Mississippian deposits (320-360 million years old) that accumulated in the Oquirrh Basin in the northwest corner of Utah. Bedding in the pit face appears to dip shallowly (10-30°) to the north-northwest.

Refer to Attachment III for additional information regarding the mineralized fault line at Lime Peak Quarry.

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## Attachment I

### 106.5 – Existing soil types, location of plant growth material

*Specific information on existing soils to be disturbed by mining will be required. General soils information may not be sufficient.*

*Provide specific descriptions of the existing soil resources found in the area. Soil types should be identified along with depth and extent, especially those to be directly impacted by mining.*

One pit per soil type was excavated. Soil was evaluated and field verified with the description in the Soil Survey of Fairfield-Nephi Area Utah, Parts of Juab, Sanpete and Utah Counties, Soil Conservation Service (SCS), 1984. Field verification of soils appeared consistent with the SCS soil survey. Note that according to the SCS map, the primary soils within the rock processing are Pits and Dumps (PK). Although classified as PK, this material is Deer Creek cobbly loam which was disturbed to create windrow berms for the railroad grade directly to the east.

#### Soil Descriptions

##### Soil Pit Number 01

###### RkF

RkF-Rock outcrop-Lundy complex 30-70 percent slopes. This soil type is on mountainside and hillsides, ratio is approximately 70% rock outcrop and 30% very cobbly to stony loams. Slopes are long and convex. Vegetation is predominantly grasses and shrubs. Soil is shallow somewhat excessively drained, formed from colluvium and residuum derived dominantly from limestone and sandstone. Typical surface layer is very dark brown cobbly loam six (6) inches thick. Underlying material is pale brown very cobbly loam about thirteen (13) inches thick. Limestone is found at about 19 inches, but depth ranges from 10 to 20 inches. Permeability is moderate. Available water capacity is 1-2 inches. Water supplying capacity is 2-4 inches. Effective rooting depth is 10-20 inches. Hazard of water erosion is slight. Soil unit is suitable for wildlife habitat. Important plant species are bluebunch wheatgrass, Utah juniper Indian ricegrass, and black sagebrush.

###### (a)

|                               |  |
|-------------------------------|--|
| Depth of soil material        | A horizon 0-4 inches,<br>B horizon 4-20 inches |
| Volume (for stockpiling)      | None   |
| Texture (field determination) | Loam   |
| pH (field determination)      | 7.6  |

##### Soil Pit Number 02

###### LeF

LeF-Lundy-Rock outcrop complex 30-70 percent slopes. This map unit is on mountainsides and hillsides with long convex slopes. Typical vegetation is grasses and shrubs. Lundy soil is derived from limestone and sandstone, shallow and somewhat excessively drained. Surface layer is dark brown very cobbly loam about 6 inches thick. Underlying material is pale brown about 13 inches thick. Limestone is found at about 19 inches, but depth ranges from 10 to 20 inches. Permeability is moderate, available water is about 1-2 inches. Water supplying capacity is 2-4 inches effective rooting depth is 10-20 inches. Runoff is medium; hazard of water erosion is slight. This soil unit is used mainly for rangeland and wildlife habitat. Potential plant community composition is

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## Attachment I

typically about 65% grasses, 3% forbs 7% shrubs and 25% trees. This unit is poorly suited to recreational uses and home site development. Main limitations are slope, stoniness, shallow depth to bedrock and rock outcrops. Important plant species are bluebunch wheatgrass, Utah juniper, Indian ricegrass, and black sagebrush.

|                               |  |
|-------------------------------|--|
| Depth of soil material        | A horizon 0-4.5 inches,<br>B horizon 4.5-13.5 inches |
| Volume (for stockpiling)      | None   |
| Texture (field determination) | Loam   |
| pH (field determination)      | 7.6  |

### Soil Pit Number 3

#### DbD

Very deep well drained soil on alluvial fans derived mainly quartzite, sandstone and igneous rocks. Slopes are long convex or concave. Vegetation is mainly grasses and shrubs. Surface layer is dark brown cobbly loam about 7 inches thick. Subsoil is yellowish brown cobbly clay loam about 28 inches thick. Available water capacity is about 6-8.5 inches. Water supplying capacity is 9.5-11 inches Effective rooting depth is 60 inches or more. Runoff is medium and hazard of water erosion is slight. Potential plant community on this soil is about 65% perennial grasses, 15% forbs, and 20% shrubs. This soil is suited for range seeding. Main limitations are slope and content of rock fragments. Plants suitable for seeding include Whitmar wheatgrass slender wheatgrass, antelope bitterbrush and species of the potential plant community for which seed or stock is available.

|                               |  |
|-------------------------------|--|
| Depth of soil material        | A horizon 0-4 inches,<br>B horizon 4-27 inches |
| Volume (for stockpiling)      | 12,250 cubic yards                             |
| Texture (field determination) | Loam   |
| pH (field determination)      | 6.9  |

(b) See Attachment IV for a map showing the location of samples, a Soil Map showing the SCS soil survey types, and a spreadsheet containing lab analysis results.

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### 106.6 - Plan for protecting and redepositing existing soils

*Describe how topsoil or subsoil material will be removed, stockpiled and protected.*

In the processing area, five acres of the proposed 12.6 acres has been stripped of usable soil from previous borrow operations completed in 2001 and 2002 by the U. S. Environmental Protection Agency. From this area, approximately 2000 cubic yards of topsoil material was stripped and remains on-site, on the south end of the processing area. From the remaining 7.6 acres, 12 inches of topsoil will be stripped prior to use. This material will stockpiled on the north end of the processing area. The topsoil will be stripped through the use of a bulldozer. A soil berm, one to two feet in height, will surround the soil stockpile to prevent loss of material through erosion from runoff. The stockpile will be seeded with a quick-growing seed mix to deter erosion. The following seed mix will be used:

| Species               | Variety     | PLS Pounds per Acre |
|-----------------------|-------------|---------------------|
| Crested wheatgrass    | Nordan      | 3                   |
| Streambank wheatgrass | Sodar       | 3                   |
| Sheep Fescue          | Black Sheep | 0.75                |
| Smooth brome          | Lincoln     | 3                   |
| Great Basin Wildrye   | VNS         | 3                   |
| Perennial ryegrass    | Linn        | 1.5                 |
| Indian ryegrass       | Nezpar      | 3                   |
|                       |             |                     |
| Total                 |             | 17.25               |

These species are quick growing, will provide the requisite 5 years of cover, and will not require any water other than natural precipitation. The 17.25 lbs. per acre is the broadcast seeding rate. Broadcast seeding will be completed using a spin spreader or hand casting.

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### 106.7 – Existing vegetative communities to establish revegetation success

*Vegetation – The Permittee / Operator is required to return the land to a useful condition and reestablish at least 70 percent of the premining vegetation ground cover.*

*Provide the Division with a description of the plant communities growing onsite and the percent vegetation cover for each plant community located on the site. Describe the methodology used to obtain these values.*

(a)

#### **Vegetation Survey**

Sampling methods used: A single transect was located within each community type that was proposed to be disturbed. Refer to the figure in Attachment IV for the location of the transects. For relocation purposes the transect start and end points were marked by GPS and a 3/8ths inches pieces of rebar was placed at each end of each transect. The rebar facilitated securing the tape in place for accurate placement of one meter square frames.

A one hundred meter tape was stretched between the start and end points. A one meter square frame was placed on alternating sides of the straightened tape. An example of the transect layout is in Attachment V. The first one meter square frame was placed on the right side of the tape at the zero (0) point. The second frame was placed on the left side of the tape at the two (2) meter mark, and so on. A modified Daubenmire cover class estimation system was employed (Daubenmire 1959, A Canopy Coverage Method of Vegetation Analysis. Northwest Science 33:43-66) to rapidly assess the percentages of ground cover of vegetation, bare ground, rock and litter.

(b)

Photographs representative of the vegetation found within each transect are in Attachment V.



## Attachment I

### 106.8 - Depth to groundwater, overburden material & geologic setting

*Describe the approximate depth to groundwater in the vicinity of the operation based on the completion of any monitoring or water wells in the area. Please show the location of these wells on the base map.*

As can be seen on Figure 1, there are three wells near the rock processing area. Each of these wells supply water for the City of Eureka Public Drinking Water System. According to the City of Eureka Drinking Water Source Protection Plan, the average depth to groundwater in this area is 12 feet below ground surface.

The quarry area is on the side of a mountain, at an elevation of approximately 6600-6700 feet, approximately 400-500 feet above the base of the mountain. It is difficult to predict groundwater depth at the quarry, but based on previous quarrying completed at the site and its location, it is unlikely that groundwater will be encountered.

*Depth to groundwater 12 ft.*

*Provide a narrative description of the geology of the area and/or a geologic cross section.*

Refer to Section 106.4 for a description of the geology in the quarry area.

Information on the geology of the rock processing area is based on information contained in the City of Eureka Drinking Water Source Protection Plan, which in turn is based on the Well Driller Reports for the Doliner, Blue Rock, and Eureka Hill wells as well as *Geology Of The Eureka Quadrangle, Utah And Juab Counties*, Morris, HT, Utah, 1964 (Geological Survey Bulletin 1142-K).

Bulletin 1142-K indicates that surface material in this area consist of "younger alluvium"; however, each of the Well Driller Reports indicate that the wells were drilled "all in Packard Rhyolite. For this reason, it is believed that the alluvium is quite shallow, likely less than 5 feet in thickness. Packard Rhyolite is a Packard quartz latite, which is a Tertiary tuff, lava, vitrophyre and flow breccia. Bulletin 1142 K describes vitrophyre, flow rocks and tuffs as follows:

|            |  |
|------------|--|
| Vitrophyre | gray to black, phenocrysts broken  |
| Flow Rocks | pinkish or blueish gray, medium grained, porphyritic, contains andesine, quartz, and biotite |
| Tuffs      | light-colored, fine grained, vitric, and lithic  |

The City of Eureka Drinking Water Source Protection Plan provides the following estimates of the aquifer characteristics for this area:

|                        |                         |
|------------------------|-------------------------|
| Hydraulic Conductivity | 1.5 ft/day              |
| Transmissivity         | 50 ft <sup>2</sup> /day |
| Hydraulic gradient     | 0.0653 ft/ft            |



## Attachment I

### 106.9 - Location and size of ore and waste stockpiles, tailings and treatment ponds, and discharges

*Describe the location and size of any proposed waste/overburden dumps, stockpiles, tailings facilities and water storage or treatment ponds.*

Waste rock will be left in the quarry area, in areas that have been disturbed by previous quarry operations. Based on an estimate of 10% of the rock blasted being waste, approximately 60,000 cubic yards of waste will be generated.

There will be no tailing, water storage, or treatment ponds.

*Describe how overburden material will be removed and stockpiled.*

Refer to Section 106.6.

*Describe how tailings, waste rock, rejected materials, etc. will be disposed of.*

Waste rock will be placed in a manner to provide stable slopes in the quarry area. Slopes will be 3H to 1V or flatter.

*Describe the acreage and capacity of waste dumps, tailings ponds and water storage ponds to be constructed. All impoundments must include the necessary hydrologic calculations to determine if they are adequately sized to handle storm events.*

There is approximately 8.8 acres in the quarry area and potentially all of this area will be used for the waste rock. There will be no tailings ponds, water storage ponds or impoundments for this operation.

*Describe any proposed effluent discharge points (UPDES) and show their location on the surface facilities map. Give the proposed discharge rate and expected water quality. Attach chemical analyses of such discharge if available.*

Not applicable to this operation.



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### IV. R647-4-107 - Operation Practices

*During operations, the Permittee / Operator shall conform to the practices listed under this section of the Minerals Rules unless the Division grants a variance in writing.*

*Describe measures taken to minimize hazards to public safety during mining operations regarding:*

*the closing or guarding of shafts and tunnels to prevent unauthorized or accidental entry in accordance with MSHA regulations;*

There will be no tunnels or shafts created by this operation. To our knowledge, there are no existing tunnels or shafts within the proposed permitted area. Should abandoned tunnels or shafts be discovered, they shall be effectively closed or fenced off to prevent entry. In addition, appropriate danger signs shall be posted.

*the disposal of trash, scrap metal, wood and extraneous debris;*

It is not expected that trash, scrap metal, wool or extraneous debris will be generated from the planned operation. Miscellaneous trash that may be generated will be transported from the site on a daily basis.

*the plugging or capping of drill, core or other exploratory holes;*

It is not planned to drill any holes other than those used for blasting. Should any holes be drilled that are not used for blasting, they shall be plugged in accordance with Utah Administrative Rule R647-4-108. Hole Plugging Requirements. Specifically, drill holes shall be properly plugged as soon as practical and shall not be left unplugged for more than 30 days without approval of the UDOGM. Proper plugging shall include setting a nonmetallic permaplug at a minimum of five (5) feet below the surface, or returning the cuttings to the hole and tamping the returned cuttings to within five (5) feet of ground level. The hole above the permaplug or tamped cuttings will be filled with a cement plug.

*the posting of appropriate warning signs in locations of public access to operations;*

Warning signs will be posted along the Lime Peak Quarry Site perimeter fencing. These will be standard OSHA approved Warning signs informing the public that only authorized personnel are allowed beyond this point. In addition to the perimeter fencing signs, additional signs will be placed on each gated entrance to the site.

In addition to the restricted access warning discussed above, signage in the proximity of overhead power transmission lines will be placed. These will be to warn authorized personnel of the restricted heights and energy hazards present.

*the construction of berms, fences or barriers above highwalls or other excavations.*

All excavations or highwalls will be located at the quarry operation area. Due to its location, near the top of a mountain, the rugged terrain and private ownership of the land, fences, berms or barriers are not planned.



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*If any of these safety measures are unnecessary, please explain why.*

*Describe measures taken to avoid or minimize environmental damages to natural drainage channels which will be affected by this mining operation.*

Since the operations planned do not use water except for dust control, the potential for environmental damages to natural drainage ways is not anticipated. As an erosion control measure, a rock check dam will be placed in a dry channel downgradient of the proposed permitted area.

*Describe measures taken to control and minimize sediment and erosion on areas affected by this mining operation. Describe measures being taken to prevent sediment from leaving the disturbed area.*

The Lime Peak Quarry Stormwater Pollution Prevention Plan (SWPPP) will be implemented to control and minimize sediment loss and erosion. The SWPPP outlines the techniques that will be used including the strategic use of Best Management Practices (BMPs), inspections, and employee training. In addition, as described in the SWPPP, soil berms and rock check dams will be constructed in strategic locations to prevent the loss of sediment from the site.

*Identify any potentially deleterious materials that may be stored on site (including fuel, oil, processing chemicals, etc.) and describe how they will be handled and stored.*

Fuel may be stored on site for the construction equipment or fueling trucks may be used. A fueling station will be established in the rock processing area. This station will be constructed in a way to contain all potential spills within a bermed area which will be lined with 40 mil geomembrane. The bermed area will contain at least 110% of the volume of any fixed field containers and the volume of fueling trucks used. All truck and construction equipment fueling operations will occur within the fueling station.

*Describe the measures taken to salvage and store soils to be used in reclamation.*

In the processing area, five acres of the proposed 12.6 acres has been stripped of usable soil from previous borrow operations completed in 2001 and 2002. From the remaining 7.6 acres, 12 inches of topsoil will be stripped prior to use. This material will stockpiled on the north end of the processing area. The topsoil will be stripped through the use of a bulldozer.

*Describe how stockpiled topsoil will be protected from erosion and further impact.*

A soil berm, one to two feet in height, will surround the soil stockpile to prevent loss of material through erosion from runoff. The stockpile will be periodically sprayed with an aqueous solution of magnesium chloride to prevent erosion from wind.

*Please describe any reclamation to be done during active mining operations prior to final closure. Reference these areas on a map.*

As waste rock is generated during operations, it will remain in the quarry operations area. Areas that have been previously disturbed in the quarry area (refer to Figure 2) will be used to place waste rock. The rock will be placed such that slopes are 3H:1V or flatter. In addition, at the end of each year's blasting, highwalls will be 1H:1V or flatter.

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## Attachment I

### V. Rule R647-108 - Hole Plugging Requirements

*All drill holes which will not eventually be consumed by mining must be plugged according to the methods listed in this section. Describe the location of any aquifers encountered by drilling and the method to be used to plug such water containing holes. Describe the method to be used for plugging holes not containing water.*

Drilled of holes will occur in the quarry operations area. As described in Section 106.8, there is a low potential for intersecting the groundwater surface in this area.

It is not planned to drill any holes other than those used for blasting. Should any holes be drilled that are not consumed by blasting, they shall be plugged in accordance with Utah Administrative Rule R647-4-108. Hole Plugging Requirements. Specifically, drill holes shall be properly plugged as soon as practical and shall not be left unplugged for more than 30 days without approval of the UDOGM. Proper plugging shall include setting a nonmetallic permaplug at a minimum of five (5) feet below the surface, or returning the cuttings to the hole and tamping the returned cuttings to within five (5) feet of ground level. The hole above the permaplug or tamped cuttings will be filled with a cement plug.

Should holes that contain water and require plugging be encountered, the entire depth of the hole shall be filled from the bottom up (through the drill stem) with a high grade bentonite/water slurry mixture. The slurry shall have a Marsh funnel viscosity of at least 50 seconds per quart prior to the adding of any cuttings.

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## Attachment I

### 109.1 Surface and groundwater systems

*Describe impacts to surface or groundwater which could be caused by this mining operation. Describe how these impacts will be monitored and mitigated. The appropriate groundwater and storm water control permits need to be obtained from the Division of Water Quality. Please reference any such permits.*

Construction activities will disturb ground in the processing area, access roads and in the lime peak quarry. These activities have the potential to mobilize sediments into storm water and create dust that can settle into and pollute surface waters. To minimize and mitigate these pollutants, Best Management Practices (BMPs) will be implemented. Stormwater will be monitored, records will be kept, and BMPs will be implemented in accordance with the Surface Water Pollution Prevention Plan (SWPPP). The SWPPP was prepared as part of the multisector general permit. Amongst the BMPs proposed are silt fence, stabilized construction entrance, water for dust control, seeding, compaction, and preservation of existing vegetation.

Operational activities will disturb ground in the lime peak quarry only. The SWPPP addresses monitoring and mitigation of all operational activities, including those around the construction roads and processing area.

Risk of pollution to groundwater is considered low. This project proposes using the Eureka Hill well, located just west of the rock processing and storage area. The Eureka Hill well is being utilized solely for water, which will be stored in a 10,000 gallon water tank onsite, for dust control to minimize potential stormwater pollutants. Vehicle washing and other maintenance activities will be performed at the storage yard in the City of Eureka. Operation of the Eureka Hill well is automated by pressure indicator. A manual override of the automated process can be implemented for shutdown if required.

For storm water purposes, three permits were acquired from the Utah Division of Water Quality (UDEQ). These permits are as follows:

- Construction Activities permit for expansion of the processing area and road construction. (UTR104058)
- Construction Activities permit for mineral mining in the blasting area and road construction. (UTR104057)
- Multisector General Permit for operation of mining operation. (UTR 000686)

For ground water purposes, permits were not required. The dry mining operation that the project proposes will present "de minimus" potential to cause pollution of waters of the state, and so would qualify for "permit by rule" status under the Ground Water Protection Regulations (UAC R317-6-6.2). A statement to this effect was issued March 8, 2005, by Rob Herbert, P.G., Manager, Groundwater Protection Section, UDEQ.

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## Attachment I

### 109.2 – Wildlife Habitat and Endangered Species

*Describe the impacts on wildlife habitat associated with this operation. Describe any impacts to big game species found in the area. Describe any impacts to riparian areas. Describe any impacts this operation will have on waterfowl (fly-over, temporary resident or permanent resident). List any threatened or endangered wildlife species found in the area. Describe impacts to threatened or endangered species and their habitats. Describe measures to be taken to minimize or mitigate any impacts to wildlife or endangered species*

#### Wildlife Habitat

Wildlife habitat found within the project vicinity consists mainly of sagebrush grasslands on gentle slopes. As the topography becomes somewhat steeper near Lime Peak, there is the inclusion of the occasional pinyon pine or Utah juniper. The main wildlife usage in this area consists of cotton-tail rabbits, several species of rodents, and deer. There are also associated predators that prey upon these species. These predators may include the occasional coyote, bobcat, badger, and raptor.

Due to the vast extent of this typical habitat in the vicinity of the project, county, and state, no negative impacts are anticipated to any species of wildlife individuals or their habitats. This area is not known to be designated as critical big game habitat.

There are no surface waters in the vicinity of the proposed project. There will be no impacts to any riparian areas. This area does not provide any suitable habitat for waterfowl either temporary or permanent residents. No impacts to migratory waterfowl are anticipated from this mine expansion.

#### Threatened and Endangered Species

This proposed project occurs entirely within Utah County, Utah. The Federally listed threatened and endangered species and their status are found below. This list is for Utah County only.

| <u>Common Name</u>                  | <u>Scientific Name</u>          | <u>Status</u> |
|-------------------------------------|---------------------------------|---------------|
| Ute ladies' –tresses                | <i>Spiranthes diluvialis</i>    | T             |
| Deseret Milkvetch                   | <i>Astragalus desereticus</i>   | T             |
| Clay Phacelia                       | <i>Phacelia argillacea</i>      | E             |
| Utah Valvata Snail – Historically   | <i>Valvata utahensis</i>        | E             |
| June Sucker                         | <i>Chasmistes liorus</i>        | E             |
| Bald eagle                          | <i>Haliaeetus leucocephalus</i> | T             |
| Yellow-billed Cuckoo                | <i>Coccyzus americanus</i>      | C             |
| Brown (Grizzly) Bear – Historically | <i>Ursus arctos</i>             | T Extirpated  |
| Canada Lynx – Possibly              | <i>Lynx canadensis</i>          | T             |

T = Threatened

E = Endangered

C = Candidate (for future listing)

The proposed project area does not provide habitat for any of these federally listed species. None of these species have been identified on site or in surrounding habitats. Mitigation for impacts to federally listed individuals or their habitats is not anticipated.

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## Attachment I

### 109.3 – Existing Soil and Plant Resources

*Describe impacts to the existing soil and plant resources in the area to be affected by mining operations. Describe impacts to riparian or wetland areas which will be affected by mining. Describe impacts to threatened or endangered plant species. Describe measures to be taken to minimize or mitigate any impacts to soil and plant resources.*

#### Soil Resources

Soil and vegetation resources found within the proposed project vicinity are quite typical of the area. Soils are typically suited only for wildlife habitat, due to stoniness, slope, shallow depth to bedrock, and shrink swell potential. Vegetation species found are very typical of the vicinity and county.

There are no riparian or wetland areas found within the proposed project footprint. There is one ephemeral drainage found south of the access road. This drainage will not be directly affected by any of the proposed mining activities. It is anticipated that no additional mitigation measures will be taken beyond standard best management practices to prevent excessive sediment transport off-site and into this ephemeral drainage.

#### Plant Resources

There are three federally listed plant species noted for Utah County. These three species and their federal status are listed below.

| <u>Common Name</u>   | <u>Scientific Name</u>        | <u>Status</u> |
|----------------------|-------------------------------|---------------|
| Ute ladies' -tresses | <i>Spiranthes diluvialis</i>  | T             |
| Deseret Milkvetch    | <i>Astragalus desereticus</i> | T             |
| Clay Phacelia        | <i>Phacelia argillacea</i>    | E             |

T = Threatened  
E = Endangered  
C = Candidate (for future listing)

The proposed project footprint does not impact areas known to support habitat for any of these three listed species. No mitigation measures are anticipated to protect or compensate for impacts to any threatened or endangered plant species.

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## Attachment I

### 109.4 – Slope stability, erosion control, air quality, public health & safety

*Describe the impacts this mining operation will have on slope stability, erosion, air quality, public health and safety. Include descriptions of highwall and slope configurations and their stability. Air quality permits from the Utah Division of Air Quality may be required for mining operations. Please reference any such permits. Describe measures to be taken to minimize or mitigate impacts to slope stability, erosion, air quality, or public health and safety.*

This operation will have a positive impact on slope stability because currently high walls with slopes of greater than 1H: 1V exist. In accordance with UDOGM requirements, the maximum highwall slope after reclamation will be 1H: 1V.

Construction activities will disturb ground in the processing area, access roads and in the lime peak quarry. These activities increase the potential for erosion from rainwater and wind. To minimize and mitigate the potential for erosion from rainwater, Best Management Practices (BMPs) will be implemented. Stormwater will be monitored, records will be kept, and BMPs will be implemented in accordance with the Surface Water Pollution Prevention Plan (SWPPP). Amongst the BMPs proposed are silt fence, stabilized construction entrance, water for dust control, seeding, compaction, and preservation of existing vegetation. To minimize and mitigate the potential for erosion from rainwater wind, requirements of the Eureka Mills Superfund Site Dust Control Plan will be applied to the proposed area to be permitted. These include a requirement for no visible emissions from the work area. Dust control will be accomplished through application of water and the application of an aqueous solution of magnesium chloride. In addition, all quarry operators will be required to hold a valid Air Quality Permit from the Utah Division of Air Quality. The current operator holds an Air Quality Permit Number DAQE 105596 issued by the Utah Department of Environmental Quality, Division of Air Quality.

The use of explosives and conducting constructions activities has the potential for creating public hazards. To mitigate these hazards, access to the proposed permit area and posting of warning signs will be implemented. Personnel working within the proposed permitted area will be required to have current Mine Safety and Health Training required by the Mine Safety Health and Safety Administration (MSHA). Implementation and monitoring of these requirements, will be the responsible of the Site Safety and Health Officer (SSHO) for the Eureka Mills Superfund Site. Applicable health and safety requirements of MSHA, OSHA and the US Army Corps of Engineers Safety and Health Requirements Manual (ME 385-1-1, November 2003) will be implemented and compliance of these requirements will be monitored by the SSHO.



## Attachment I

### VII. Rule R647-4-110 - RECLAMATION PLAN

#### 110.1 - Current land use and postmining land use

*Current or premining land use(s) [other than mining]:*

It does not appear that the land has ever been used for other than mining purposes.

*List future post-mine land-use(s) proposed:*

- Limited grazing
- Wildlife habitat

#### 110.2 - Reclamation of roads, highwalls, slopes, leach pads, dumps, etc.

*Describe how the following features will be reclaimed: roads, highwalls, slopes, impoundments, drainages and natural drainage patterns, pits, ponds, dumps, shafts, adits, drill holes and leach pads. Describe the configuration of these features after final reclamation. Describe the rinsing and neutralization of leach pads associated with final decommissioning.*

*Describe how roads will be reclaimed. Road reclamation may include: regrading cut and fill sections, ripping the road surface with a dozer, topsoil replacement, construction of water bars, construction of traffic control berms or ditches, and reseeding.*

Existing roads will not be reclaimed.

Roads constructed for this operation will be reclaimed. All of the roads constructed will be in areas with steep grades. During road construction, 12"-18" of topsoil will be stripped from the road and placed downgradient from edge of the road. If additional material requires removal to flatten the road, this material will be placed between the downgradient edge of the road and the stockpiled topsoil. The road will then be paved with 6"-12" of aggregate road base. A small ditch will be created between the stockpiled soil and the road to convey runoff from the road. For reclamation, the stockpiled soil will be replaced over the top of the road with a track hoe. The roads will then be "ripped" with a bulldozer a minimum of two feet to reduce compaction, then reseeded. After reseeding, entrances and exits to reclaimed roads will be blocked with boulders or rock berms.

*Describe how highwalls will be reclaimed. Highwall reclamation may include: drilling and blasting, backfilling, regrading, topsoil replacement, and reseeding.*

Each year, the quantity of rock required for the project will be produced through operating the quarry. At the end of each year's operation, highwalls in the quarry will be left at a slope of no steeper than 1H:1V. Due to the location of the quarry, high up on the side of a mountain, topsoiling and reseeding is not practical.

*Describe how slopes will be reclaimed. Slope reclamation may include: regrading to a 3 horizontal : 1 vertical (3h:1v) configuration, topsoil replacement, contour ripping, pitting, and reseeding.*

In the quarry area, slopes will be left no steeper than 1H:1V. Due to the location of the quarry, high up on the side of a mountain, topsoiling and reseeding is not practical.

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## Attachment I

In the rock processing area, slopes steeper than 4H:1V are not anticipated. The rock processing area will be reclaimed as follows:

- The entire area will be "ripped" with a bull dozer to a depth of two feet.
- Next, a minimum of twelve inches of topsoil will be placed over the entire area.
- Next, the entire area will be "ripped" to a depth of six inches.
- The entire area will be reseeded.

*Describe how impoundments, pits and ponds will be reclaimed. Include the final elevations and final disposition of the drainage in and around the impoundment. If the impoundment, pit, or pond is intended to be left as part of the post-mining land use, then an agreement with the land managing agency/owner is required. Structures to remain must be left in a stable condition.*

The proposed operation does not include the use of impoundments, pits, ponds or structures.

*Include the final size of the impoundment, pit, pond in acre-feet of storage and the capacity of the spillway to safely pass storm events.*

The proposed operation does not include the use of impoundments, pits, ponds or structures.

*Impoundments, pits, and ponds, which are not approved as part of the post mining land use shall be reclaimed, free draining, and the natural drainage patterns restored.*

The proposed operation does not include the use of impoundments, pits, ponds or structures.

*Describe how drainages will be reclaimed. Drainage reclamation would include: the reestablishment of a natural drainage pattern which fits in with the upstream and downstream cross-section of existing drainage in the vicinity of the disturbance; the reestablishment of a stable channel in the reclaimed reach of channel, using the necessary armoring to prevent excessive erosion and downstream sedimentation.*

It is not anticipated that natural drainages will not be impacted by the proposed operation. A rock check dam will be placed in the ephemeral stream downgradient of the operation to slow the flow of the stream should it flow. The purpose of the check dam is to collect any sediment that may have collected in the runoff from the permitted area. At the end of the operations, the rock check dam will be removed. In addition, any sediment that may have collected upstream of the check dam will be removed and used as topsoil for the reclamation of the rock processing area.

*Include cross-sections and profiles of reestablished channels to demonstrate compatibility with existing drainage characteristics.*

Natural drainages will not be impacted by the proposed operation.

*Describe how waste dumps will be reclaimed. Waste dump reclamation may include regrading to a 3h:1v configuration, topsoil replacement, mulch or biosolids applications, contour ripping or pitting, and reseeded. Characterization of the physical and chemical nature of the waste dump materials should be provided.*

Waste rock generated during the operation will be left in the quarry area and regarded to slopes of no steeper than 3H:1V.

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## Attachment I

*Describe how shafts and adits will be reclaimed. Reclamation of shafts may include: backfilling, installation of a metal grate, installation of a reinforced concrete cap, topsoil replacement and reseeding. Reclamation of adits may include: backfilling, installation of a block wall, installation of a metal grate, topsoil replacement and reseeding.*

The proposed operation does not include the use of shafts or adits.

*Describe how drill holes will be reclaimed. Drill hole reclamation must be consistent with the rules for plugging drill holes (R647-4-108). Reclamation of plugged drill holes may include topsoil replacement and reseeding.*

It is not planned to drill any holes other than those used for blasting. Should any holes be drilled that are not consumed by blasting, they shall be plugged in accordance with Utah Administrative Rule. No reclamation of drill holes is planned.

*Describe how tailings areas will be reclaimed. Tailings reclamation may include: dewatering, neutralization, placement of cap materials, placement of subsoil materials, topsoil replacement and reseeding. Characterization of the physical and chemical makeup of the tailings material should be provided.*

The proposed operation does not include the use of tailings areas.

*Describe how leach pads will be reclaimed. Reclamation of leached materials may include: neutralization or leached materials, rinsing of leached materials, dewatering leached materials, regrading slopes of leached materials to 3h:1v, extending pad liners, placement of capping materials, placement of subsoil materials, mulch or biosolids application, topsoil replacement and reseeding. Characterization of the physical and chemical makeup of the leached materials should be provided. Post closure monitoring and collection of drain down fluids should also be addressed.*

The proposed operation does not include the use of leach pads.

*NOTE: The Minerals Rules require overall highwall angles of no more than 45° at final reclamation unless a variance is granted. All dump or fill slopes should be left at an angle of 3h:1v or less. Any slopes steeper than 3h:1v must be reclaimed using state-of-the-art surface stabilization technology. Pit benches exceeding 35 feet in width should be topsoiled, or covered with fines, and revegetated.*

*Describe the final disposition of any stockpiled materials on site at the time of final reclamation.*

All stockpiled aggregate products will be consumed by the project or will be relocated for use in maintaining the completed project. Stockpiled topsoil shall be used in reclamation.

### **110.3 - Surface facilities to be left**

*Describe any surface facilities which are proposed to remain on-site after reclamation (buildings, utilities, roads, drainage structures, impoundments, etc.). Describe their post-mine application. Justification for not reclaiming these facilities must be included in the variance request section.*

No surface facilities will be left except for roads which existed prior to the operation.



## **Attachment I**

### **110.4 - Treatment, location and disposition of deleterious materials**

*Describe the nature and extent of any deleterious or acid forming materials located on-site. Describe how these materials will be neutralized, removed, or disposed of on site. Describe how buildings, foundations, trash and other waste materials will be disposed of.*

The only deleterious material that may be stored on site is fuel, which will be consumed at the end of the project.

No acid forming material will be located on-site during the project. No buildings, foundations, trash, or other waste materials will be located on-site.



## Attachment I

### 110.5 - Revegetation planting program and topsoil redistribution

*Describe the revegetation tasks to be performed in detail. For example, will ripping, mulching, fertilizing, seeding and scarifying of these areas be performed and if so, how will this be accomplished? Correlate this information with the Reclamation Treatments Map.*

#### a) Soil Material Replacement

*In order to reestablish the required ground cover, one to two feet (depending on underlying material) of suitable soil material usually has to be redistributed on the areas to be reseeded. If the stockpiled soil isn't sufficient for this, soil borrow areas will need to be located. Describe the volume of soils and approximate depth of soil cover to be used in reclamation. Describe the source of these soils and provide an agronomic analysis of the soils. If soils will not be used describe the alternative material or amendments to be applied in lieu of soils. Describe the methods used to transport and place soils.*

The rock processing area (12.6 acres) will be revegetated at the end of the project by. Twelve inches of topsoil will be placed across this area for the revegetation. The primary source for the topsoil will be topsoil stockpiled from stripping approximately 7.6 acres of the rock processing area. In addition to these soils, approximately 2,000 yards of topsoil is stockpiled at the south end of the rock processing area from borrow operations conducted in this area during 2001 and 2002. Since these two sources combined will not be sufficient, a third source will also be required. As part of the Eureka Mills Superfund Site project operations, it is planned to operate a borrow pit adjacent and west of the rock processing area. It is estimated that 5,000 to 6,000 cubic yards of material from this area will need to be imported to the rock processing area. The soils in this area are similar to the materials in the rock processing area, according to the Soil Conservation Service Soils Map (see Attachment IV). Three samples from this area were collected and analyzed for pH, salinity, and organic matter. The results of these analyses are provided in the Table 1.

Table 1

| Sample No.      | pH  | Salinity (dS/M) | Organic Matter (%) |
|-----------------|-----|-----------------|--------------------|
| B05-H41-PCS-D06 | 7.4 | 0.9             | 2.5                |
| B05-H53-PCS-D06 | 7.3 | 0.8             | 2.1                |
| B05-H81-PCS-D06 | 6.9 | 0.5             | 2.6                |

Sample collected on 10/7/04

Samples analyzed by Utah State University

In addition to the analysis, Utah State University indicated that this material is suitable for use as topsoil in this region.

Material imported from the adjacent borrow site will be required to meet the topsoil specifications contained in the Eureka Mills Superfund Site Remedial Action Work Plan (RAWP). These requirements include:

- Max. particle size of one inch
- pH range between 5-7
- Organic content between 5-20%

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## Attachment I

Topsoil must be analyzed for the properties and at the frequencies indicated in the Table 2.

**Table 2**

| Property                      | Frequency         | Method           |
|-------------------------------|-------------------|------------------|
| Grain size analysis           | 5,000 cubic yards | ASTM D 422       |
| pH                            | 5,000 cubic yards | ASTM D 4972      |
| Organic content               | 5,000 cubic yards | ASTM D 2974      |
| SAR - Sodium Adsorption Ratio | 5,000 cubic yards | USDA Handbook 60 |
| Electrical Conductivity       | 5,000 cubic yards | USDA Handbook 60 |

SAR and Electrical Conductivity tests must be conducted by a laboratory that is a member of the North American Proficiency Testing Program. Also note that the recommendations from an approved laboratory supercede pH and organic content requirements listed in Table 1.

Stockpiled topsoil will be spread across the rock processing area with a bulldozer. Imported topsoil material will be transported using 8-12 yard trucks, dumped in the rock processing area and spread using a bulldozer. After the topsoil has been spread, the area will be "ripped" with a bulldozer as described in Section 110.2 of this permit.

Roads constructed for this operation will receive topsoil replacement. During road construction, 12"-18" of topsoil will be stripped from the road and stockpiles on the downgradient edge of the road. Once the project is completed, stockpiled soil will be replaced over the top of the road using a bulldozer and then "ripped", as described in Section 110.2 of this permit.

*b) Seed Bed Preparation*

*Describe how the seedbed will be prepared and equipment to be used. The Division recommends ripping or discing to a minimum of 12 inches and leaving the seed bed surface in as roughened condition as possible to enhance water harvesting, erosion control and revegetation success. Compacted surfaces such as roads and pads should be deep ripped a minimum of 18 inches.*

Once all materials and equipment have been removed, the area will be ripped with a bulldozer as described in Section 110.2 of this permit.

*c) Seed Mixture - List the species to be seeded:*

*Provide a seed mix listing adaptable plant species and the rate of seeding that will be upon the areas to be reclaimed. Keep the proposed post-mining land use in mind when developing seed mixes.*

| Species  | PLS Pounds Per Acre |
|--|---------------------|
| Streambank wheatgrass ( <i>Agropyron riparium</i> )  | 3.25                |
| Bluebunch wheatgrass ( <i>Agropyron spicatum</i> )   | 3.5                 |
| Green needlegrass ( <i>Stipa viridula</i> )          | 3.0                 |
| Indian ricegrass ( <i>Oryzopsis hymenoides</i> )     | 3.0                 |
| Sandberg bluegrass ( <i>Poa sandbergii</i> )         | 0.5                 |
| Sheep fescue ( <i>Festuca ovina</i> )                | 0.75                |
| Slender wheatgrass ( <i>Agropyron trachycaulum</i> ) | 3.0                 |
| Western wheatgrass ( <i>Agropyron smithii</i> )      | 3.0                 |

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## Attachment I

### d) Seeding Method

*Describe method of planting the seed. The Division recommends planting the seed with a rangeland or farm drill. If broadcast seeding, harrow or rake the seed 1/4 to 2 inch into the soil. Fall is the preferred time to seed.*

Seeding method will be broadcast with a spin spreader or hand casting. Seed shall be uniformly raked into the soil.

### e) Fertilization

*Describe fertilization method, type(s) and application rate (if needed).*

Fertilization, if conducted, will be based on recommendation of a agronomist or qualified scientist after review of the seed mix and soil data and be completed in accordance with the requirements of Attachment VI. Based on our experiences to date, we do not anticipate the need for fertilization.

### f) Other Revegetation Procedures

*Please describe other reclamation procedures, such as mulching, biosolids application, irrigation, hydroseeding, etc., that may be planned.*

Mulching and/or biosolid application, if conducted, will be completed in accordance with the requirements of Attachment VI.

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**ATTACHMENT II**

**Figures**

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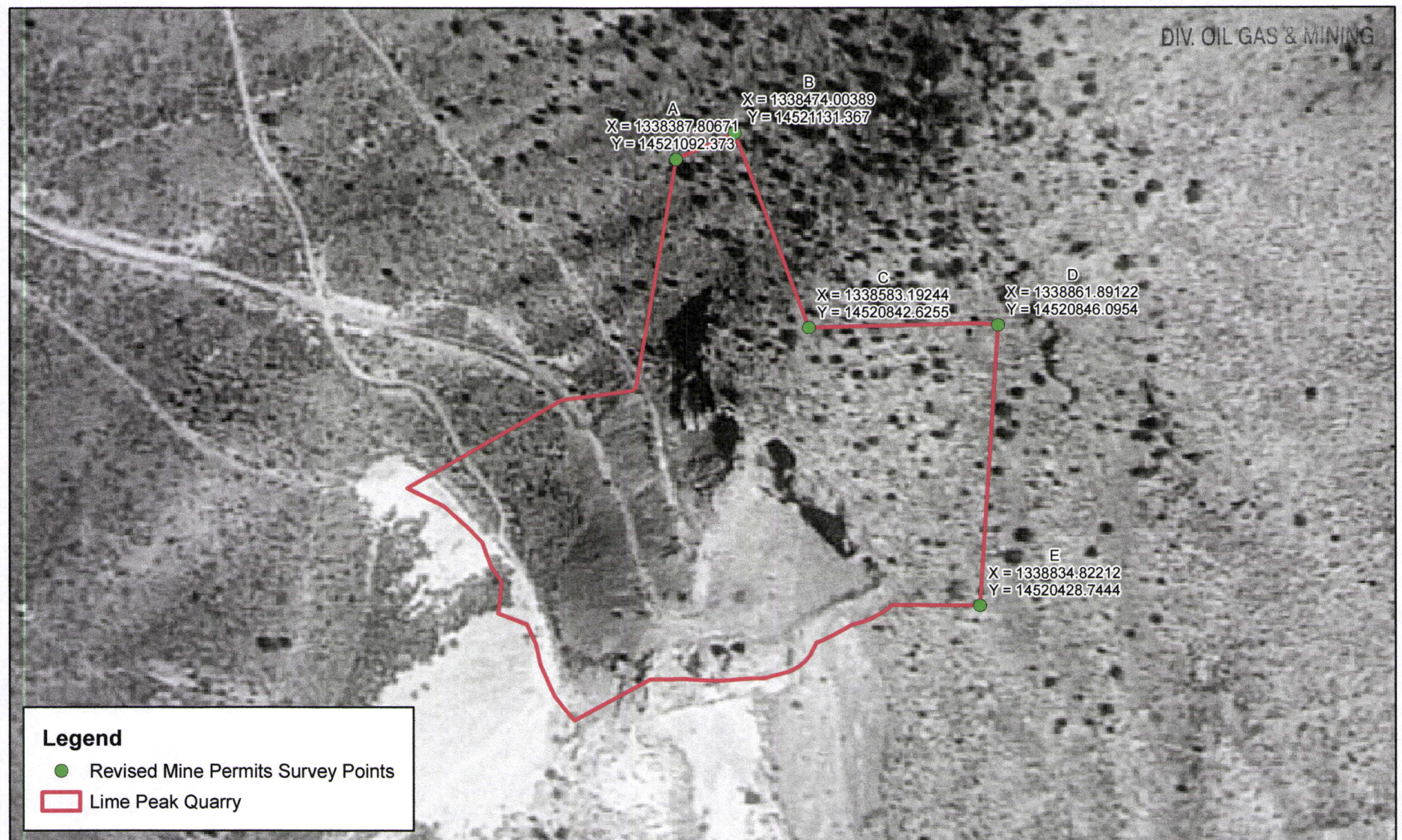


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MAY 05 2008

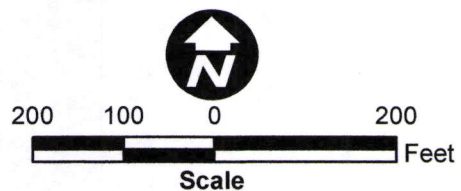
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**Legend**

- Revised Mine Permits Survey Points
- Lime Peak Quarry



HDR

Eureka Mills NPL Site, Eureka, UT

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APR 25 2008

Lime Peak Quarry - Revised Permit Boundaries

DIV. OF OIL, GAS & MINING

DATE

October 2007

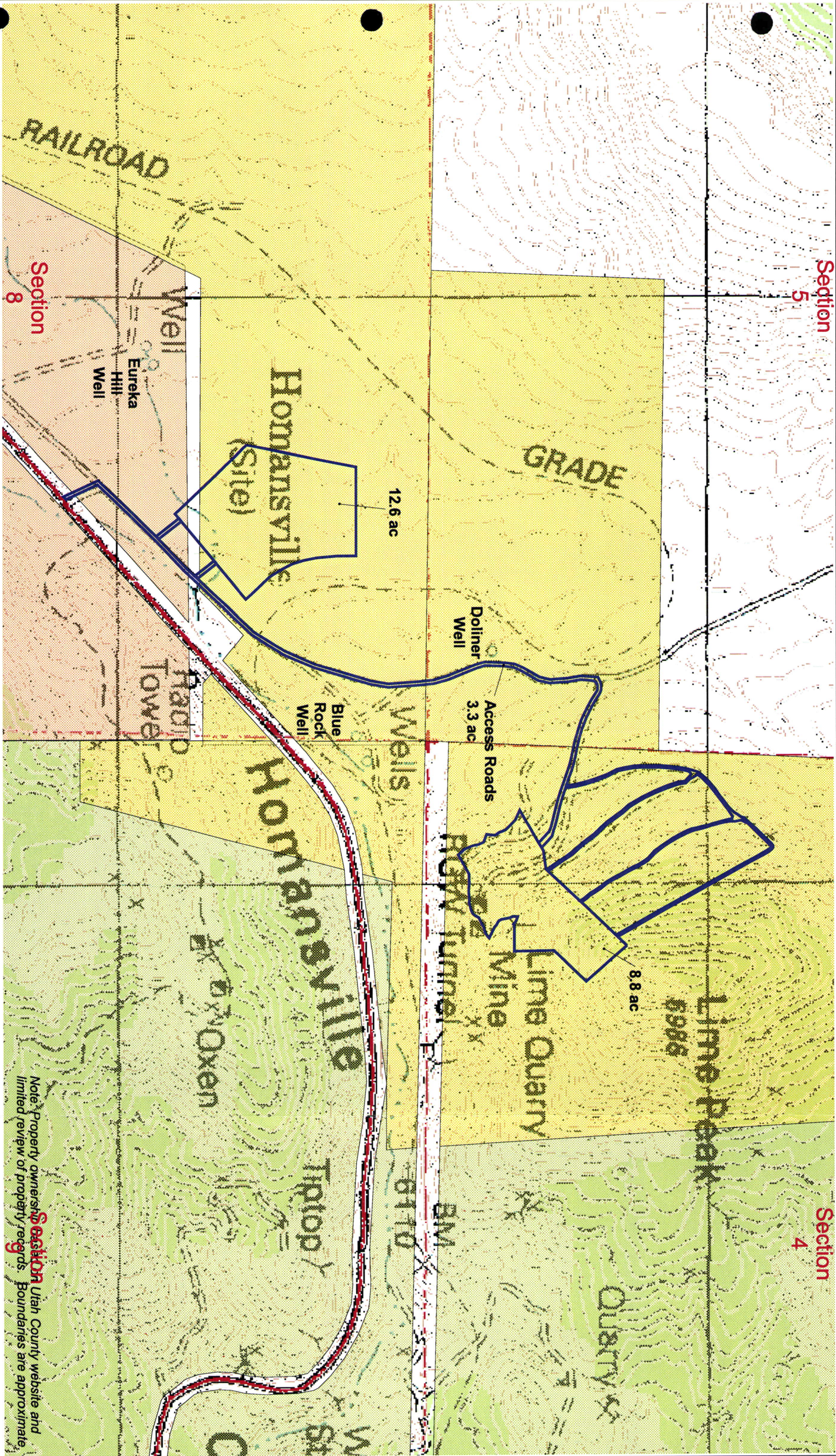
FIGURE

1



Section  
5

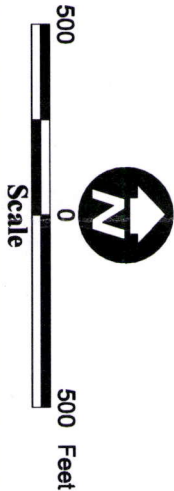
Section  
4



Section  
8

Legend

- Proposed Area to be Permitted
- Land Ownership
  - CHIEF CONS MINING CO
  - US BUREAU OF LAND MANAGEMENT
  - QUEST CAPITAL CORP



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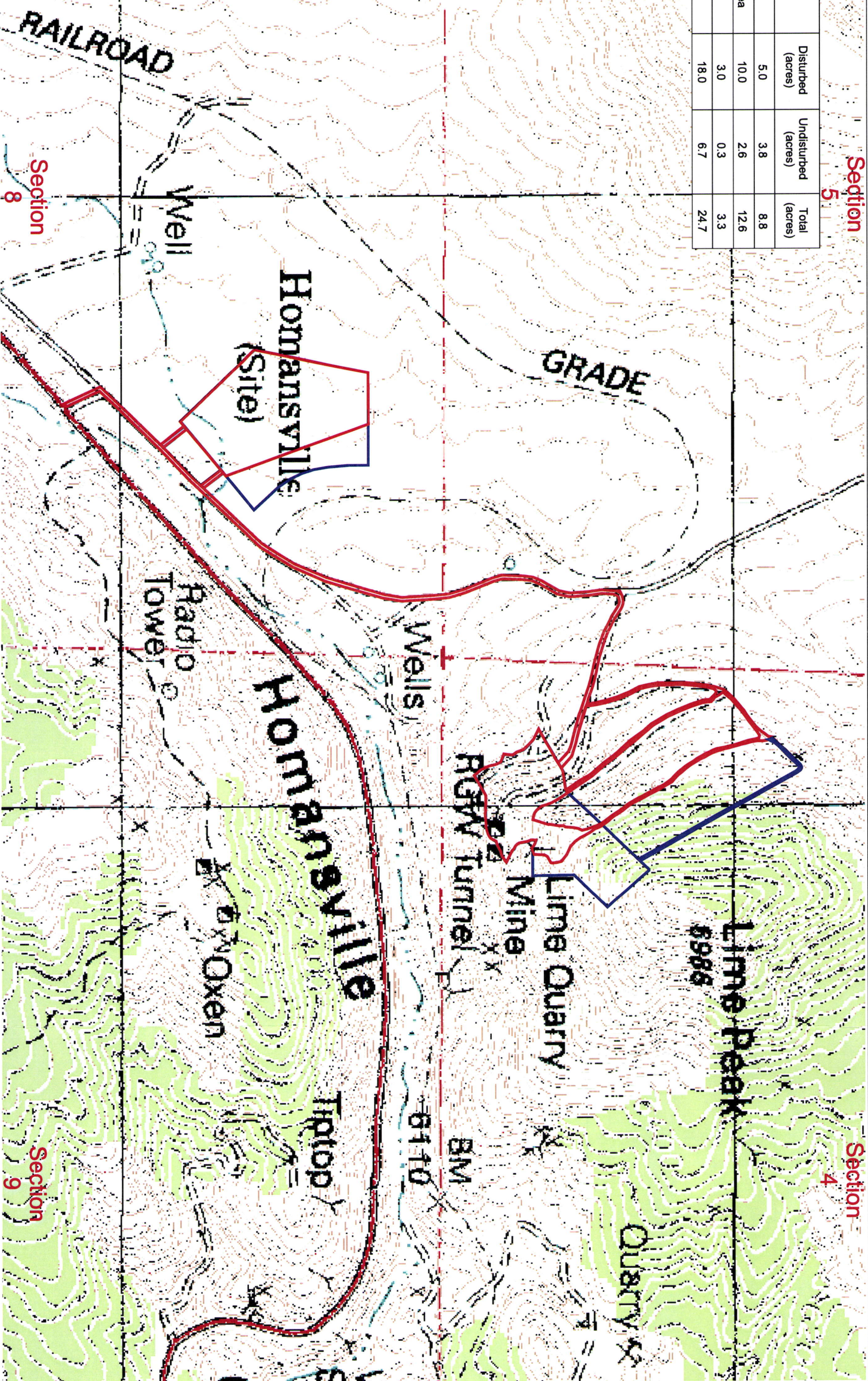
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Source: USGS Topographic Map, Eureka Quadrange, 1992  
**Eureka Mills Superfund Site, Eureka, UT**  
Lime Peak Quarry Mining Permit  
Figure 1 - Base Map

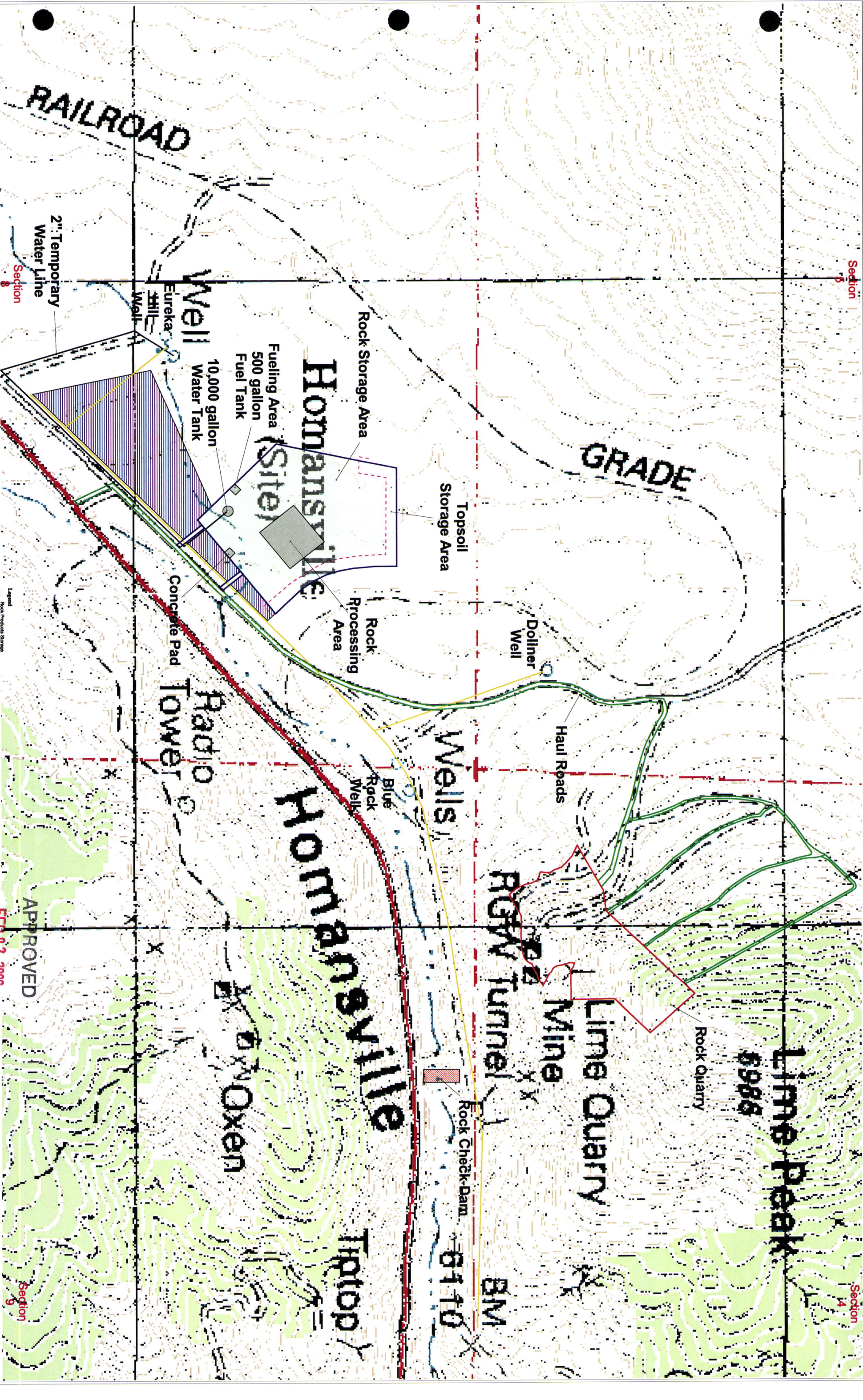
Note: Property ownership boundaries are approximate and limited review of property records. Boundaries are approximate.



|                 | Disturbed<br>(acres) | Undisturbed<br>(acres) | Total<br>(acres) |
|-----------------|----------------------|------------------------|------------------|
| Quarry          | 5.0                  | 3.8                    | 8.8              |
| Processing Area | 10.0                 | 2.6                    | 12.6             |
| Roads           | 3.0                  | 0.3                    | 3.3              |
| Total           | 18.0                 | 6.7                    | 24.7             |





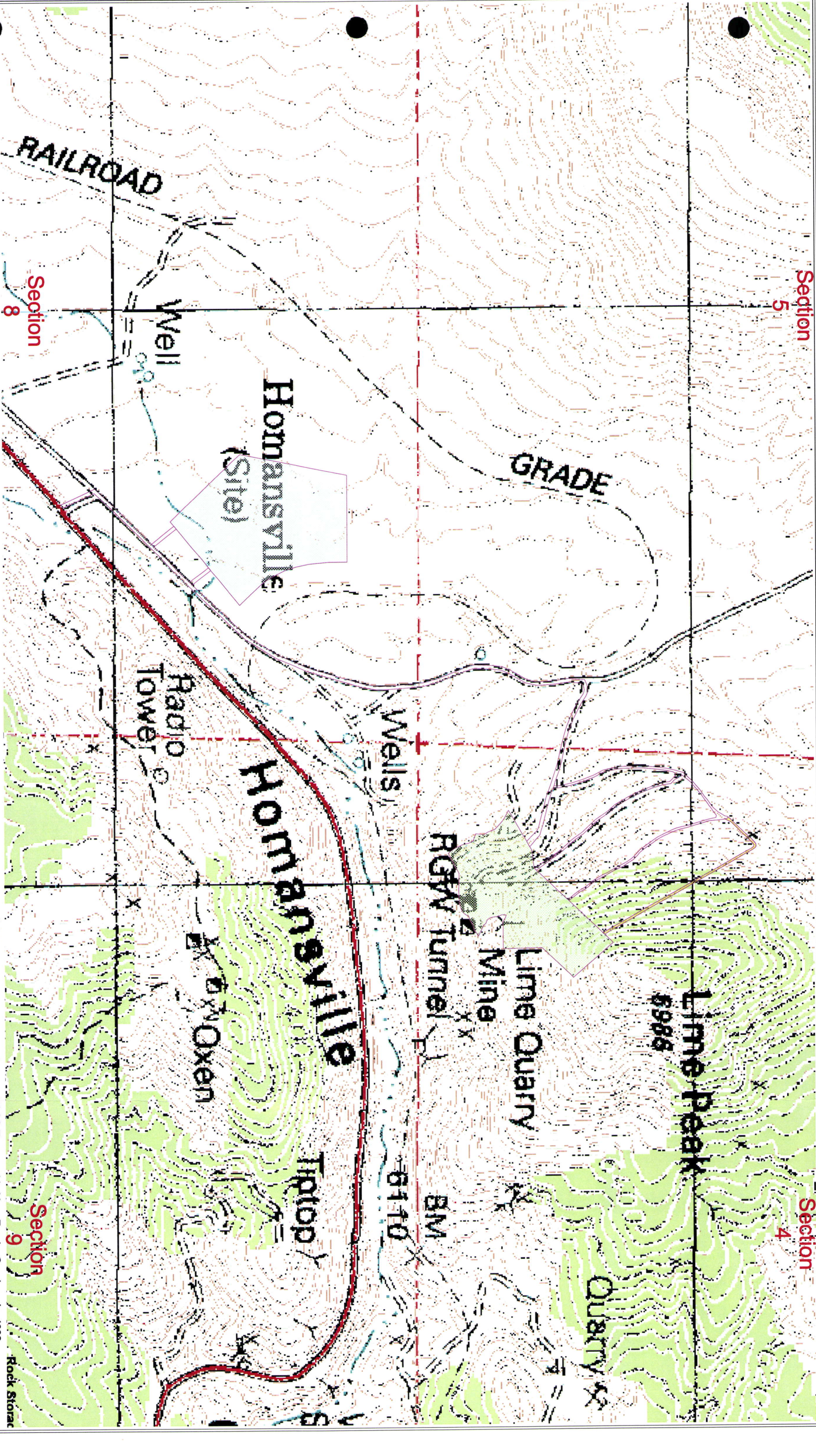


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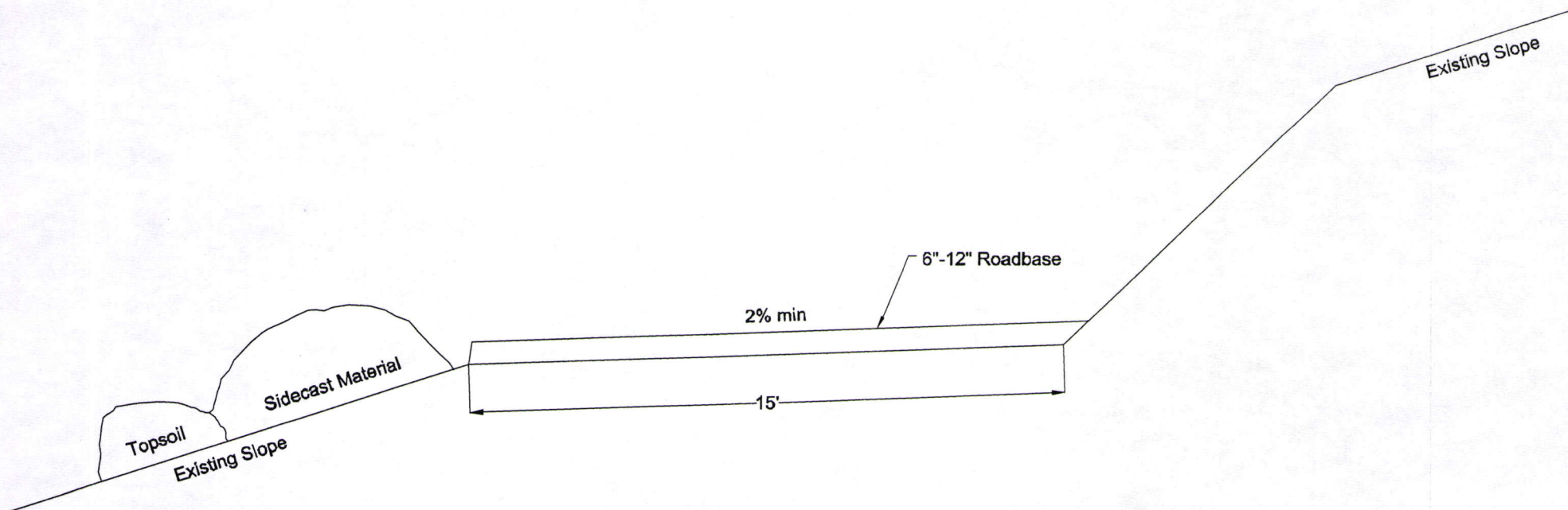
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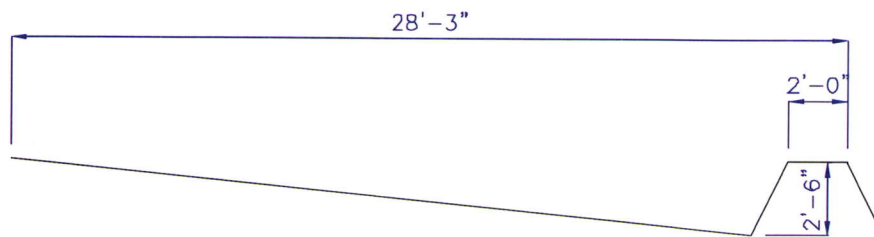
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Not to Scale

**Eureka Mills Superfund Site, Eureka, UT**  
Lime Peak Quarry Mining Permit

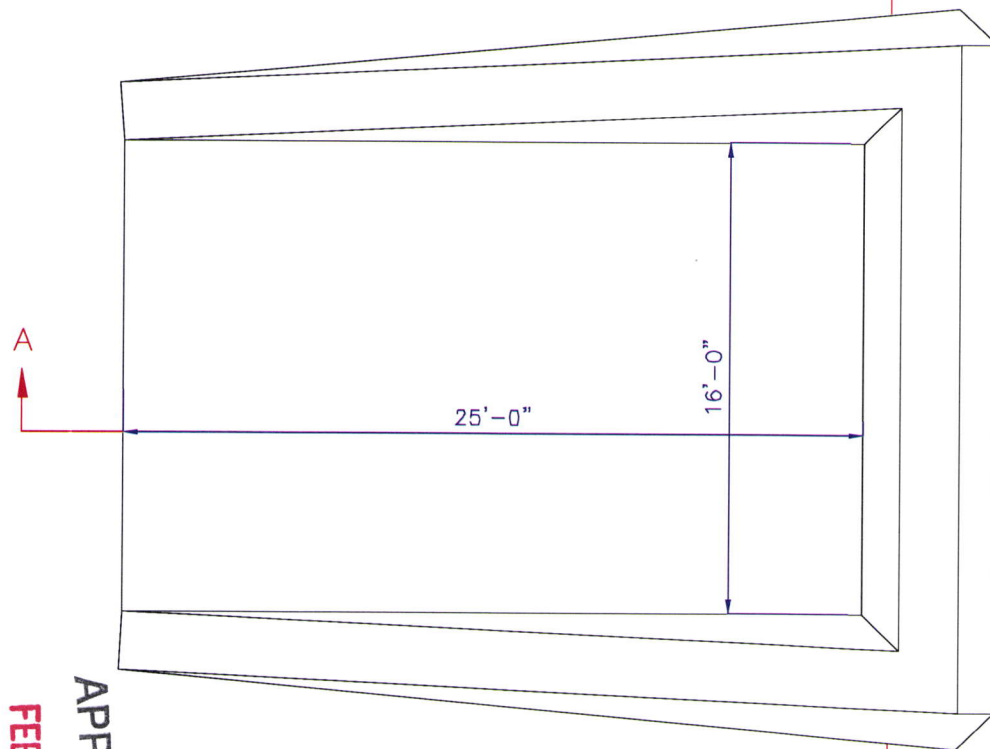
**Figure 5 - Road Cross Section**





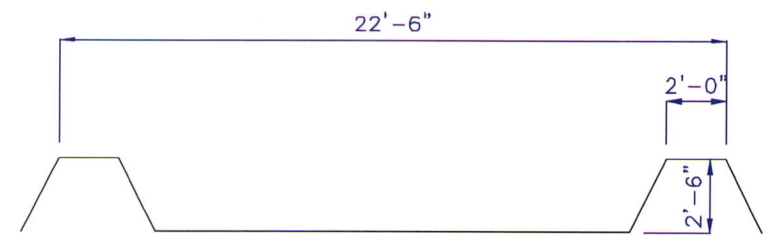
SECTION A-A

B



PLAN VIEW

B



SECTION B-B

A

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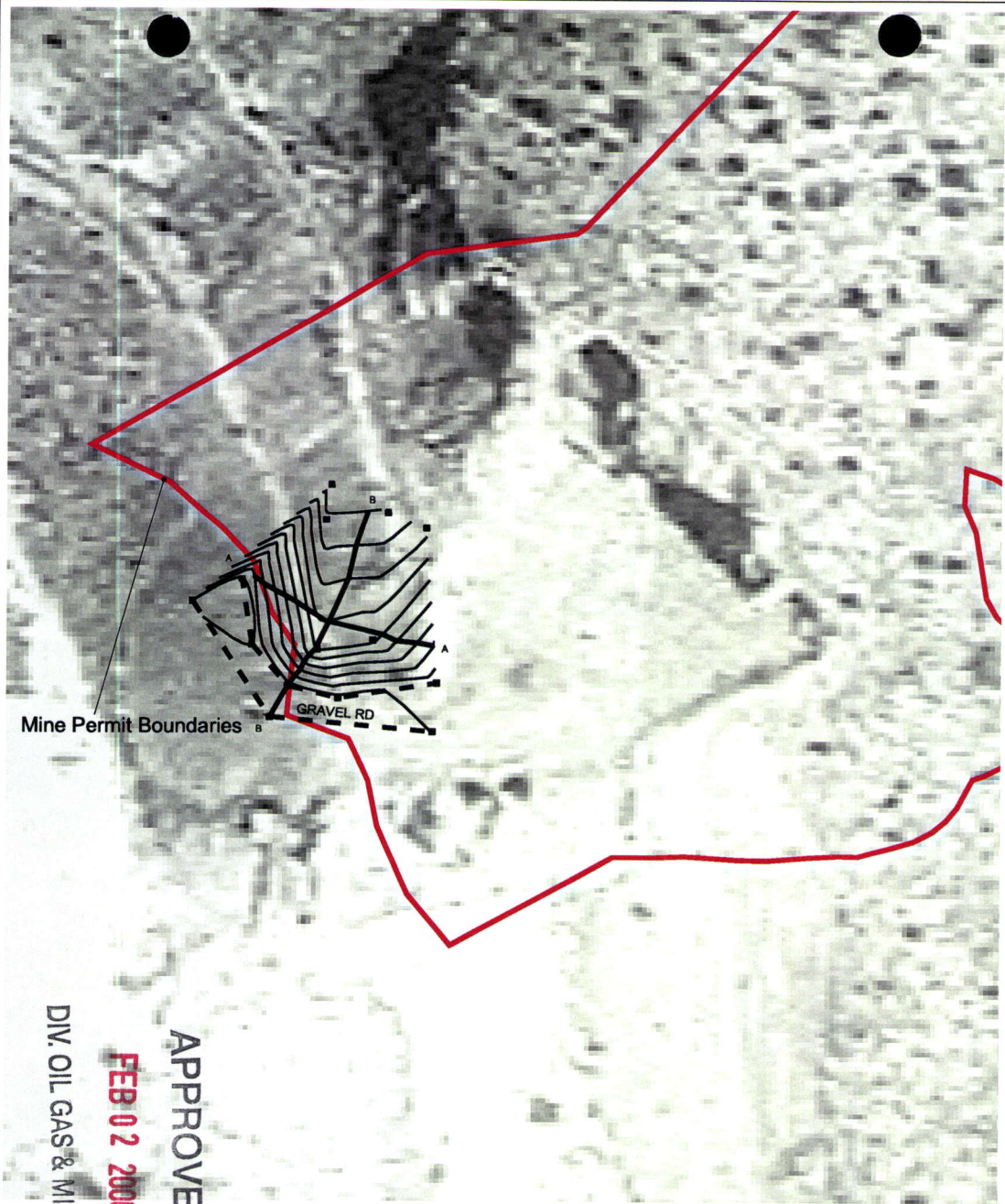
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**Eureka Mills Superfund Site, Eureka, UT**  
Lime Peak Quarry Mining Permit

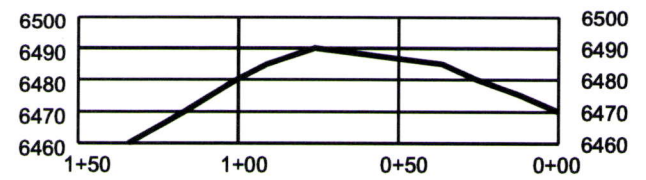
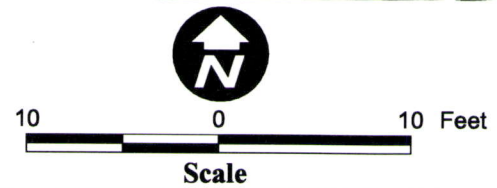
**Figure 6 - Fuel Pad Cross Section**





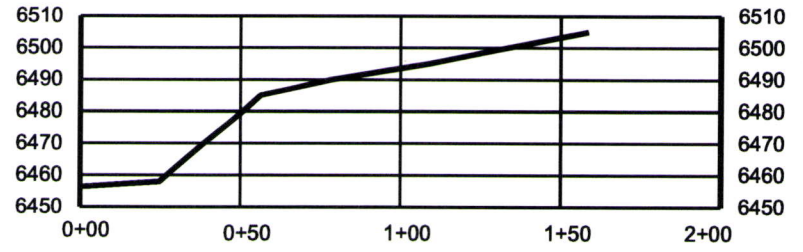
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SECTION A - A

V = 1 : 10  
H = 1 : 10



SECTION B - B

H = 1 : 10  
V = 1 : 10

# **Eureka Mills Superfund Site, Eureka, UT** **Lime Peak Quarry Mining Permit**

**Figure 7**



**ATTACHMENT III**

**Lime Peak Quarry  
Investigation Information**

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**KLEINFELDER**

*An employee owned company*

May 26, 2005

Kleinfelder File No. 36826.002

Joseph R. Shields, P.E.

HDR

8404 Indian Hills Drive

Omaha, NE 68114-4049

Dear Mr. Shields:

We have prepared this letter to address your request for assistance in responding to UDOGM's comments on the Lime Peak Quarry Large Mine Permit. Specifically, you requested we provide a discussion of the occurrence of mineralization at the site, whether any of the minerals were sulfur based, if sulfur would be present in the parent rock and, if so at what percentages, and an evaluation of the potential for degradation surrounding vegetation if the minerals leached. Our analysis is based on visual observation and limited sampling of the mineralized areas within the quarry and is not intended to quantify potential impacts from mineral transport from the quarry. To further evaluate these issues, a more comprehensive sampling and analytical program is needed.

Based on our visual observations, mineralization at the Lime Peak Quarry occurs in several ways:

- In random brown chalky manganese-rich zones within boulders and cobbles that remain piled along the east side of the access road to the foot of the quarry face. These were generated by previous users.
- In an irregular shaped outcrop of red-orange chalky material on the slope just above the above-mentioned boulder pile.
- In a thin (a few inches to a foot) well-weathered fault plane that is near vertical and generally strikes perpendicular to the quarry face. The fault is located on the west side of the active quarry face where a low ridge runs from the base to the top of the quarry. This feature has been left in place and forms the boundary between the rock intended to be mined on the east and that which will be left in place on the west.

Sampling and analysis by Shaw (December 2004) showed each occurrence to have similar levels of arsenic which were above the regulatory limit for residential use at the site. All three of these occurrences have and will be avoided while quarrying with one exception. An access road to the mid level of the quarry face needed to cross this ridge feature and any mineralized material was excavated away from the rock being mined while building this access road.

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Acid mine drainage (AMD) results when the mineral pyrite ( $\text{FeS}_2$ ) is exposed to air and water resulting in the formation of sulfuric acid and iron hydroxide. There is no indication of microscopic disseminated sulfides within the limestone, nor would the regional or localized geology suggest the possibility. Further, the vast majority of material at the quarry consists of limestone ( $\text{CaCO}_3$ ), which tends to neutralize acidity. Because there is neither iron pyrite nor any other iron bearing primary sulfide minerals evident at the Lime Peak Quarry, the likelihood of AMD appears remote.

Arsenic detected in Lime Peak Quarry samples is in the form of arsenic sulfide, and is likely realgar, pararealgar or orpiment. However, further testing would be necessary to prove percentages of iron, arsenic, and sulfur.

The mineral occurrences all totaled make up a very small part of the site material (less than 1%) and any surrounding vegetation is well removed from the mineralized material. Therefore, there appears to be a minimal potential for degradation of the surrounding vegetation.

### LIMITATIONS


Kleinfelder performed a limited field assessment of the Lime Peak Quarry. Assessments are non-comprehensive by nature and are unlikely to identify all potential problems or eliminate all risk. This letter report is a qualitative assessment. Kleinfelder offers a range of investigative and engineering services to suit the needs of our clients, including more quantitative investigations. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help you understand and better manage your risks. Since such detailed services involve greater expense, we ask our clients to participate in identifying the level of service that will provide them with an acceptable level of risk. Please contact the signatories of this report if you would like to discuss the issue of risk further.


Land use, site conditions (both on-site and off-site) and other factors will change over time. Since site activities and regulations beyond our control could change at any time after the completion of this report, our observations, findings, and opinions can be considered valid only of the date of the site visit.

Kleinfelder appreciates the opportunity to prepare this report for Shaw Environmental, Inc. If you have any questions or would like additional information, please contact the undersigned at (801) 261-3336.

Sincerely,

**KLEINFELDER, INC.**

  
Matt Ivers, P.G.  
Staff Geologist

  
Kerry L. Ruebelmann, P.G.  
Environmental Division Manager

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**ATTACHMENT IV**

**Soils Data, Soil Pit and Vegetation  
Transect Location Map, and Soils Map**

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## Attachment IV

### Pit 01 A Horizon

|           |   |            |
|-----------|---|------------|
| Depth     | = | 0-4 inches |
| Thickness | = | 4 inches   |
| Texture   | = | Loam       |
| %         |   |            |
| Sand      |   | 40.72      |
| Silt      |   | 36.72      |
| Clay      |   | 22.56      |

|   |         |
|---|---------|
| pH                                      | 7.64    |
| Electrical Conductivity (dS/m)          | 0.73    |
| Cation Exchange Capacity (meq/100g)     | 13.39   |
| SAR - Sodium Absorption Ratio           | 0.33    |
| Calcium-SAR (ppm Ca)                    | 117.44  |
| Magnesium SAR (ppm Mg)                  | 8.80    |
| Sodium SAR (ppm Na)                     | 13.92   |
| Percent Organic Matter                  | 2.15    |
| Total N (ppm total N)                   | 1076.00 |
| Phosphorus (ppm P)                      | 13.83   |
| Potassium (as K <sub>2</sub> O) (ppm K) | 140.80  |
| Acid Potential                          | 0.83    |
| Neutralizing Potential                  | 333.80  |
| Acid Base Potential                     | 332.97  |

Notes: Recommend application of 60 lbs of P<sub>2</sub>O<sub>5</sub>/acre  
No additional fertilizer needed for nutrients N and K.  
Ec data indicates no salinity problems.  
SAR data indicates no sodium hazard.

|                        |   |      |
|------------------------|---|------|
| Acid Potential         | } | Good |
| Neutralizing Potential |   |      |
| Acid Base Potential    |   |      |
| Acid Base Potential    |   |      |

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## Attachment IV

### Pit 01 B Horizon

Depth = 4-20 inches  
Thickness = 16 inches  
Texture = Clay Loam  
%  
Sand 36.72  
Silt 33.08  
Clay 30.20

|   |         |
|---|---------|
| pH                                      | 7.56    |
| Electrical Conductivity (dS/m)          | 0.63    |
| Cation Exchange Capacity (meq/100g)     | 17.70   |
| SAR - Sodium Absorption Ratio           | 0.73    |
| Calcium-SAR (ppm Ca)                    | 98.88   |
| Magnesium SAR (ppm Mg)                  | 7.36    |
| Sodium SAR (ppm Na)                     | 28.00   |
| Percent Organic Matter                  | 2.44    |
| Total N (ppm total N)                   | 1153.00 |
| Phosphorus (ppm P)                      | 10.26   |
| Potassium (as K <sub>2</sub> O) (ppm K) | 393.60  |
| Acid Potential                          | 0.78    |
| Neutralizing Potential                  | 407.10  |
| Acid Base Potential                     | 406.32  |

Notes: Recommend application of 60 lbs of P<sub>2</sub>O<sub>5</sub>/acre  
No additional fertilizer needed for nutrients N and K.  
Ec data indicates no salinity problems.  
SAR data indicates no sodium hazard.

|                        |        |
|------------------------|--------|
| Acid Potential         | } Good |
| Neutralizing Potential |        |
| Acid Base Potential    |        |

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## Attachment IV

### Pit 02 A Horizon

Depth = 0-4.5 inches  
Thickness = 4.5 inches  
Texture = Loam

%  
Sand 41.64  
Silt 34.80  
Clay 23.56

|   |         |
|---|---------|
| pH                                      | 7.69    |
| Electrical Conductivity (dS/m)          | 0.62    |
| Cation Exchange Capacity (meq/100g)     | 17.17   |
| SAR - Sodium Absorption Ratio           | 0.46    |
| Calcium-SAR (ppm Ca)                    | 104.64  |
| Magnesium SAR (ppm Mg)                  | 6.08    |
| Sodium SAR (ppm Na)                     | 17.92   |
| Percent Organic Matter                  | 3.16    |
| Total N (ppm total N)                   | 1372.00 |
| Phosphorus (ppm P)                      | 19.24   |
| Potassium (as K <sub>2</sub> O) (ppm K) | 252.80  |
| Acid Potential                          | 0.95    |
| Neutralizing Potential                  | 313.30  |
| Acid Base Potential                     | 312.35  |

Notes: No additional fertilizer needed for nutrients N, P, K.  
Ec data indicates no salinity problems.  
SAR data indicates no sodium hazard.

|                        |   |      |
|------------------------|---|------|
| Acid Potential         | } | Good |
| Neutralizing Potential |   |      |
| Acid Base Potential    |   |      |

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## Attachment IV

### Pit 02 B Horizon

Depth = 4.5-13.5 inches  
Thickness = 9 inches  
Texture = Clay Loam  
%  
Sand 33.64  
Silt 29.80  
Clay 36.56

|   |         |
|---|---------|
| pH                                      | 7.47    |
| Electrical Conductivity (dS/m)          | 0.64    |
| Cation Exchange Capacity (meq/100g)     | 21.09   |
| SAR - Sodium Absorption Ratio           | 0.35    |
| Calcium-SAR (ppm Ca)                    | 104.16  |
| Magnesium SAR (ppm Mg)                  | 6.88    |
| Sodium SAR (ppm Na)                     | 13.76   |
| Percent Organic Matter                  | 3.03    |
| Total N (ppm total N)                   | 1208.00 |
| Phosphorus (ppm P)                      | 52.05   |
| Potassium (as K <sub>2</sub> O) (ppm K) | 281.60  |
| Acid Potential                          | 0.73    |
| Neutralizing Potential                  | 436.80  |
| Acid Base Potential                     | 436.07  |

Notes: No additional fertilizer needed for nutrients N, P, K.  
Ec data indicates no salinity problems.  
SAR data indicates no sodium hazard.

|                        |   |      |
|------------------------|---|------|
| Acid Potential         | } | Good |
| Neutralizing Potential |   |      |
| Acid Base Potential    |   |      |

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## Attachment IV

### Pit 03 A Horizon

Depth = 0-4 inches  
Thickness = 4 inches  
Texture = Loam

%  
Sand 48.00  
Silt 30.44  
Clay 21.56

|   |         |
|---|---------|
| pH                                      | 6.93    |
| Ec Electrical Conductivity (dS/m)       | 0.80    |
| CEC - Cation Exchange Capacity (meq/1   | 15.61   |
| SAR - Sodium Absorption Ratio           | 0.33    |
| Calcium-SAR (ppm Ca)                    | 134.56  |
| Magnesium SAR (ppm Mg)                  | 24.32   |
| Sodium SAR (ppm Na)                     | 15.84   |
| Percent Organic Matter                  | 2.79    |
| Total N (ppm total N)                   | 1121.00 |
| Phosphorus (ppm P)                      | 18.70   |
| Potassium (as K <sub>2</sub> O) (ppm K) | 278.40  |
| Acid Potential                          | 87.95   |
| Neutralizing Potential                  | 89.00   |
| Acid Base Potential                     | 87.95   |

Notes: No additional fertilizer needed for nutrients N, P, K.  
Ec data indicates no salinity problems.  
SAR data indicates no sodium hazard.

|                        |        |
|------------------------|--------|
| Acid Potential         | } Good |
| Neutralizing Potential |        |
| Acid Base Potential    |        |

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## Attachment IV

### Pit 03 B Horizon

Depth = 4-27 inches  
Thickness = 23 inches  
Texture = Sandy Clay Loam  
%  
Sand 54.00  
Silt 24.44  
Clay 21.56

|   |        |
|---|--------|
| pH                                      | 6.93   |
| Electrical Conductivity (dS/m)          | 0.56   |
| Cation Exchange Capacity (meq/100g)     | 17.91  |
| SAR - Sodium Absorption Ratio           | 0.28   |
| Calcium-SAR (ppm Ca)                    | 125.76 |
| Magnesium SAR (ppm Mg)                  | 18.08  |
| Sodium SAR (ppm Na)                     | 12.80  |
| Percent Organic Matter                  | 1.79   |
| Total N (ppm total N)                   | 605.10 |
| Phosphorus (ppm P)                      | 22.82  |
| Potassium (as K <sub>2</sub> O) (ppm K) | 182.40 |
| Acid Potential                          | 1.22   |
| Neutralizing Potential                  | 45.50  |
| Acid Base Potential                     | 44.28  |

Notes: No additional fertilizer needed for nutrients N, P, K.  
Ec data indicates no salinity problems.  
SAR data indicates no sodium hazard.

Acid Potential  
Neutralizing Potential  
Acid Base Potential } Good

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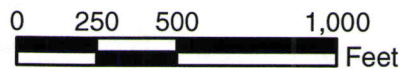
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# Legend

- Soil Pit
- Transect Point
- Transect

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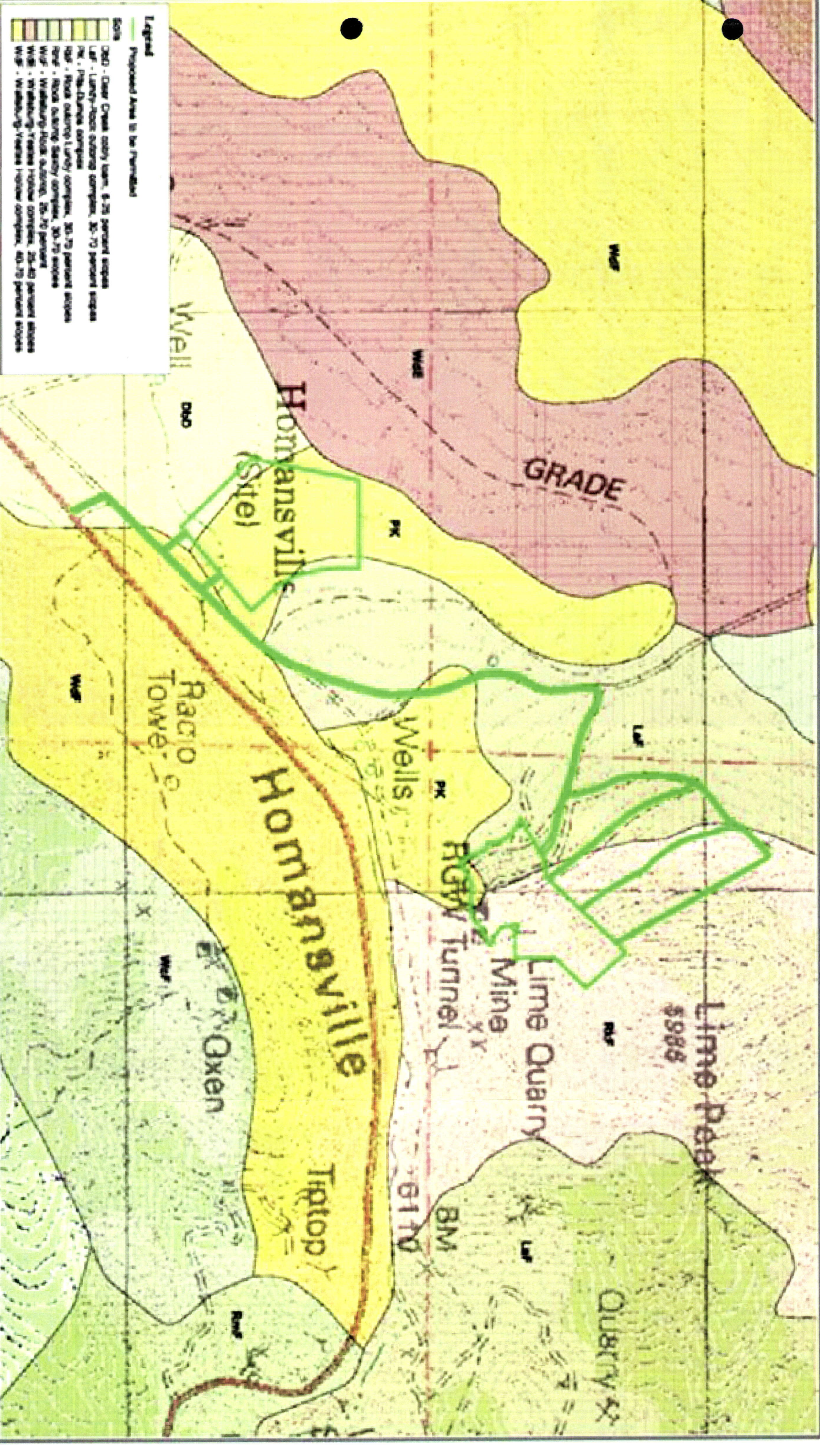


Eureka Mills NPL Site, Eureka, UT

Lime Peak Quarry Mining Permit

Soil Pit and Potential Vegetation Transect Locations





**Legend**

Proposed Area to be Permitted

**Score**

- 0-25 - Clear Creek study team, 8-25 percent slopes
- 26-50 - Lumpy-Rock study team, 26-50 percent slopes
- 51-75 - Pika-Dunlap study team, 51-75 percent slopes
- 76-100 - Pika-Dunlap study team, 76-100 percent slopes
- 101-125 - Pika-Dunlap study team, 101-125 percent slopes
- 126-150 - Pika-Dunlap study team, 126-150 percent slopes
- 151-175 - Pika-Dunlap study team, 151-175 percent slopes
- 176-200 - Pika-Dunlap study team, 176-200 percent slopes
- 201-225 - Pika-Dunlap study team, 201-225 percent slopes
- 226-250 - Pika-Dunlap study team, 226-250 percent slopes
- 251-275 - Pika-Dunlap study team, 251-275 percent slopes
- 276-300 - Pika-Dunlap study team, 276-300 percent slopes
- 301-325 - Pika-Dunlap study team, 301-325 percent slopes
- 326-350 - Pika-Dunlap study team, 326-350 percent slopes
- 351-375 - Pika-Dunlap study team, 351-375 percent slopes
- 376-400 - Pika-Dunlap study team, 376-400 percent slopes
- 401-425 - Pika-Dunlap study team, 401-425 percent slopes
- 426-450 - Pika-Dunlap study team, 426-450 percent slopes
- 451-475 - Pika-Dunlap study team, 451-475 percent slopes
- 476-500 - Pika-Dunlap study team, 476-500 percent slopes
- 501-525 - Pika-Dunlap study team, 501-525 percent slopes
- 526-550 - Pika-Dunlap study team, 526-550 percent slopes
- 551-575 - Pika-Dunlap study team, 551-575 percent slopes
- 576-600 - Pika-Dunlap study team, 576-600 percent slopes
- 601-625 - Pika-Dunlap study team, 601-625 percent slopes
- 626-650 - Pika-Dunlap study team, 626-650 percent slopes
- 651-675 - Pika-Dunlap study team, 651-675 percent slopes
- 676-700 - Pika-Dunlap study team, 676-700 percent slopes
- 701-725 - Pika-Dunlap study team, 701-725 percent slopes
- 726-750 - Pika-Dunlap study team, 726-750 percent slopes
- 751-775 - Pika-Dunlap study team, 751-775 percent slopes
- 776-800 - Pika-Dunlap study team, 776-800 percent slopes
- 801-825 - Pika-Dunlap study team, 801-825 percent slopes
- 826-850 - Pika-Dunlap study team, 826-850 percent slopes
- 851-875 - Pika-Dunlap study team, 851-875 percent slopes
- 876-900 - Pika-Dunlap study team, 876-900 percent slopes
- 901-925 - Pika-Dunlap study team, 901-925 percent slopes
- 926-950 - Pika-Dunlap study team, 926-950 percent slopes
- 951-975 - Pika-Dunlap study team, 951-975 percent slopes
- 976-1000 - Pika-Dunlap study team, 976-1000 percent slopes

HDR

Scale 0 500 Feet

North Arrow

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Source: USGS Topographic Map, Eureka Quadrangle, 1962; Soil Survey of Farmington Area, 1961, 1964; Eureka Mills NPL Site, Eureka, UT; Lime Peak Quarry Mining Permit

Scale Map



**ATTACHMENT V**

**Vegetation Survey Results and  
Vegetation Photos**

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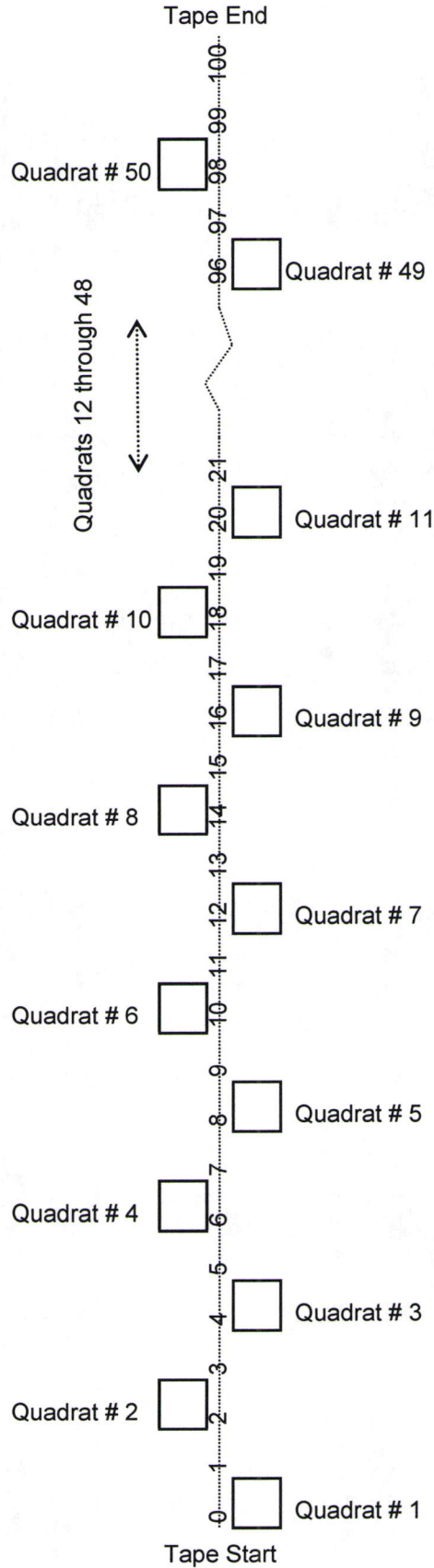
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# Vegetation Survey Results / Quadrant Placement

Example of transect layout. Numbers shown along tape below indicate the meter at which the frames are placed.

Quadrat numbers are only given to illustrate the relative positioning and sequencing. 50 quadrats will be sampled on each transect.



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## Attachment V

### Vegetation Survey Results

#### Transect 1 – Upper most in elevation

##### Dominants

|                             |     |
|-----------------------------|-----|
| <i>Poa fendleriana</i>      | 15% |
| <i>Artemesia tridentata</i> | 11% |
| <i>Poa secunda</i>          | 10% |

##### Sub-dominant

|                                   |    |
|-----------------------------------|----|
| <i>Chrysothamnus vicidiflorus</i> | 5% |
|-----------------------------------|----|

**Total Vegetative Cover                      55%**

|             |     |
|-------------|-----|
| Bare Ground | 9%  |
| Rock        | 33% |
| Litter      | 4%  |

**Total Non-Vegetative Cover                      45%**

#### Species Lists - Transect 1

| Scientific Name            | Average |
|----------------------------|---------|
| Phlox hoodii               | 3.2     |
| Artemesia tridentata       | 11.4    |
| Poa secunda                | 10.3    |
| Poa fendleriana            | 14.6    |
| Eriogonum umbulatum        | 0.5     |
| Gutaresia sarothrae        | 0.9     |
| Chrysothamnus vicidiflorus | 4.9     |
| Oxytropis sericea          | 0.0     |
| Allysum desertorum         | 0.2     |
| Taraxacum officianally     | 0.1     |
| Cymopterus spp             | 0.2     |
| Calcortus nuttallii        | 0.1     |
| Bromus tectorum            | 0.0     |
| Arenaria spp               | 0.4     |
| Juniperous osteosperma     | 1.5     |
| Scientific Name            | Average |
| Casteleja chromosa         | 0.0     |
| Poa fendleriana            | 0.3     |
| Purshia tridentata         | 1.6     |
| Eriogonum heracieoides     | 0.0     |

|                    |             |
|--------------------|-------------|
| Lepidium montanum  | 0.4         |
| unk grass          | 0.9         |
| Descurania pinatta | 0.0         |
| ephedra            | 0.6         |
| Pinus edulis       | 2.1         |
| unk aster          | 0.3         |
| <b>Total</b>       | <b>54.5</b> |
| Litter             | 4.1         |
| Rock               | 32.8        |
| Bare Ground        | 9.4         |
| <b>Total</b>       | <b>46.3</b> |

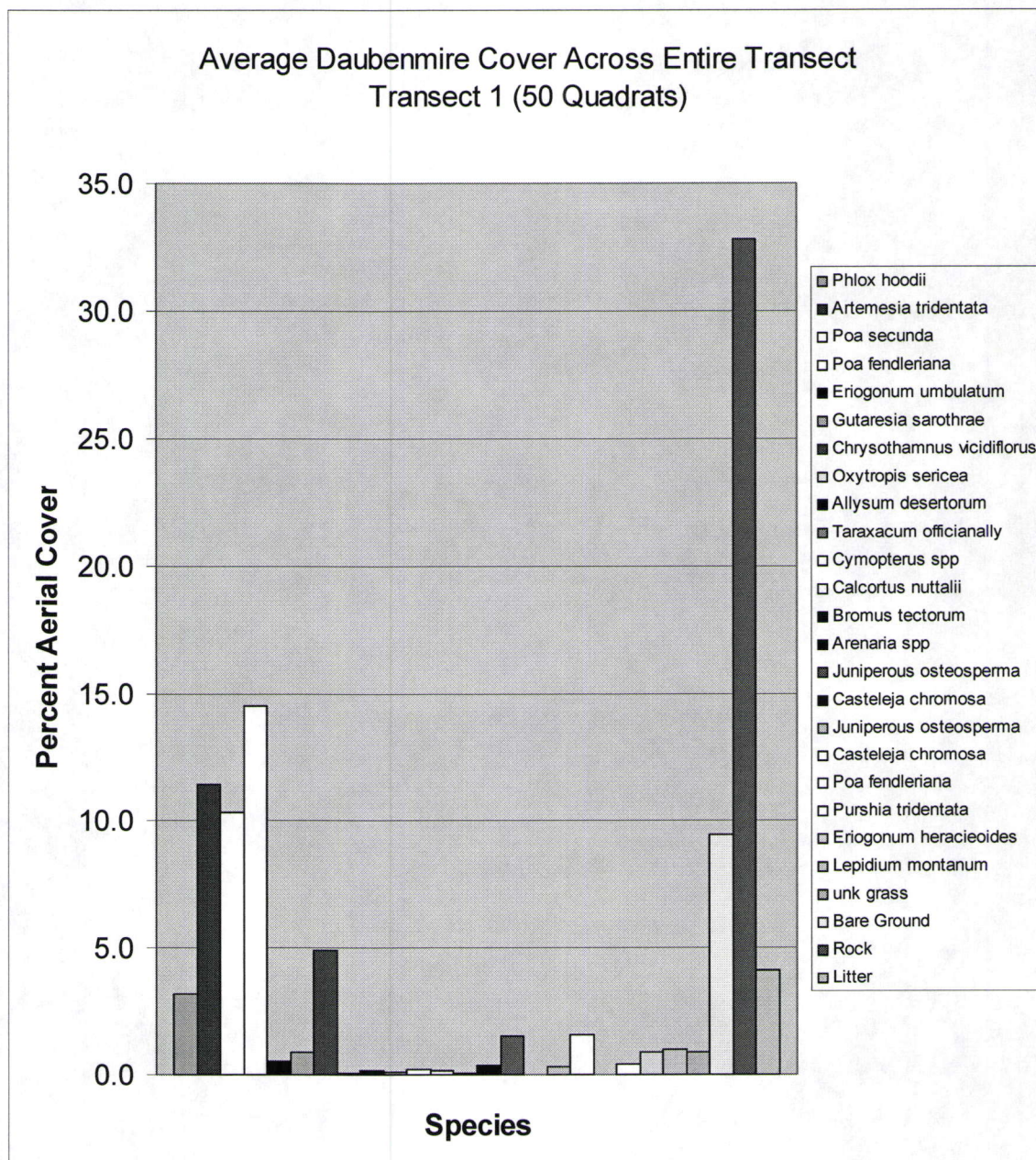
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# Attachment V

## Vegetation Survey Results



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## Attachment V

### Vegetation Survey Results

#### Transect 2 – Mid-elevation

##### Dominants

|                             |     |
|-----------------------------|-----|
| <i>Artemesia tridentata</i> | 12% |
| <i>Bromus tectorum</i>      | 11% |

##### Sub-dominant

|                           |    |
|---------------------------|----|
| <i>Agropyron spicatum</i> | 6% |
| <i>Purshia tridentate</i> | 4% |

**Total Vegetative Cover**                      **47%**

|             |     |
|-------------|-----|
| Bare Ground | 23% |
| Rock        | 25% |
| Litter      | 6%  |

**Total Non-Vegetative Cover**                      **54%**

#### Species List - Transect 2

| Scientific Name                    | Average |
|------------------------------------|---------|
| <i>Artemesia tridentata</i>        | 12.3    |
| <i>Tetradymia canescens</i>        | 3.8     |
| <i>Purshia tridentata</i>          | 6.2     |
| <i>Bromus tectorum</i>             | 11.4    |
| <i>Chrysothamnus vicidiflorous</i> | 2.3     |
| <i>Allysum desertorum</i>          | 0.7     |
| <i>Allysum spp.</i>                | 1.1     |
| <i>Astragalus spp.</i>             | 0.1     |
| <i>Agropyron spicatum</i>          | 6.0     |
| <i>Chrysothamnus nauseosus</i>     | 0.9     |
| <i>Phlox longiflorum</i>           | 0.5     |
| <i>Poa secunda</i>                 | 1.6     |
| <i>Descurania pinatta</i>          | 0.1     |
| Scientific Name                    | Average |
| <i>Calcortus nutallii</i>          | 0.0     |
| <i>Circium spp</i>                 | 0.1     |
| <i>Arabis spp</i>                  | 0.0     |
| <i>Eriogonum spp</i>               | 0.0     |
| <i>Streptanthus cordatus</i>       | 0.0     |

|                               |             |
|-------------------------------|-------------|
| <i>Cryptantha humulis</i>     | 0.0         |
| <i>Taraxacum officianalle</i> | 0.0         |
| <b>Total</b>                  | <b>47.1</b> |
| Litter                        | 5.5         |
| Rock                          | 25.3        |
| Bare Ground                   | 23.4        |
| <b>Total</b>                  | <b>54.1</b> |

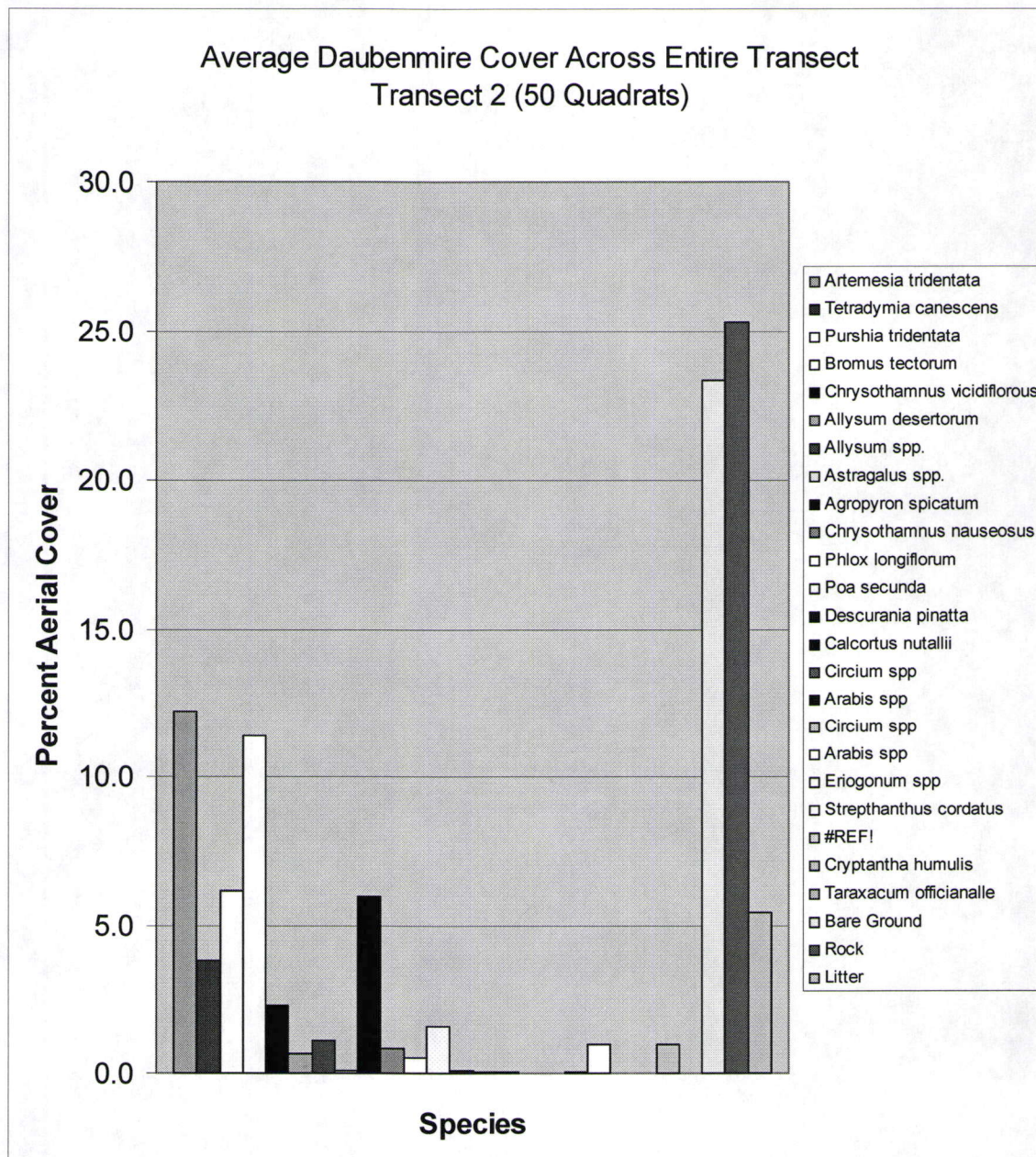
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# Attachment V

## Vegetation Survey Results



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## Attachment V

### Vegetation Survey Results

#### Transect 3 – Low-Elevation

##### Dominants

|                                   |     |
|-----------------------------------|-----|
| <i>Bromus tectorum</i>            | 22% |
| <i>Artemesia tridentata</i>       | 13% |
| <i>Chrysothamnus vicidiflorus</i> | 15% |

##### Sub-dominant

|                               |    |
|-------------------------------|----|
| <i>Chrysothamnus naseosus</i> | 9% |
| <i>Elymus smithii</i>         | 8% |

**Total Vegetative Cover                      79%**

|             |     |
|-------------|-----|
| Bare Ground | 8%  |
| Rock        | <1% |
| Litter      | 6%  |

**Total Non-Vegetative Cover                      14%**

#### Species List - Transect 3

| Scientific Name                   | Average |
|-----------------------------------|---------|
| <i>Artemesia tridentata</i>       | 13.4    |
| <i>Chrysothamnus vicidiflorus</i> | 15.4    |
| <i>Bromus tectorum</i>            | 22.0    |
| <i>Descurania pinnata</i>         | 1.2     |
| <i>Alyssum desertorum</i>         | 0.2     |
| <i>Collinsia parviflora</i>       | 3.5     |
| <i>Elymus smithii</i>             | 8.5     |
| <i>Poa secunda</i>                | 0.4     |
| <i>Chrysothamnus nauseosus</i>    | 0.4     |
| <i>Lupinus cadatus</i>            | 9.1     |
| <i>Phlox longifolia</i>           | 1.8     |
| <i>Ranunculus testiculatus</i>    | 0.4     |
| <i>Poa pratensis</i>              | 0.3     |
| Scientific Name                   | Average |
| <i>Delphinium bicolor</i>         | 0.2     |
| <i>Festuca ovina</i>              | 1.4     |
| <i>Alyssum desertorum</i>         | 0.1     |
| <i>Agoseris glauca</i>            | 0.0     |

|                              |             |
|------------------------------|-------------|
| <i>Sphaeralcea coccinea</i>  | 0.0         |
| <i>Artemesia ludoviciana</i> | 0.0         |
| <i>Allium nevadaensis</i>    | 0.1         |
| <i>Purshia tridentata</i>    | 0.1         |
| <b>Total</b>                 | <b>78.4</b> |
| Litter                       | 5.9         |
| Rock                         | 0.1         |
| Bare Ground                  | 7.6         |
| <b>Total</b>                 | <b>13.6</b> |

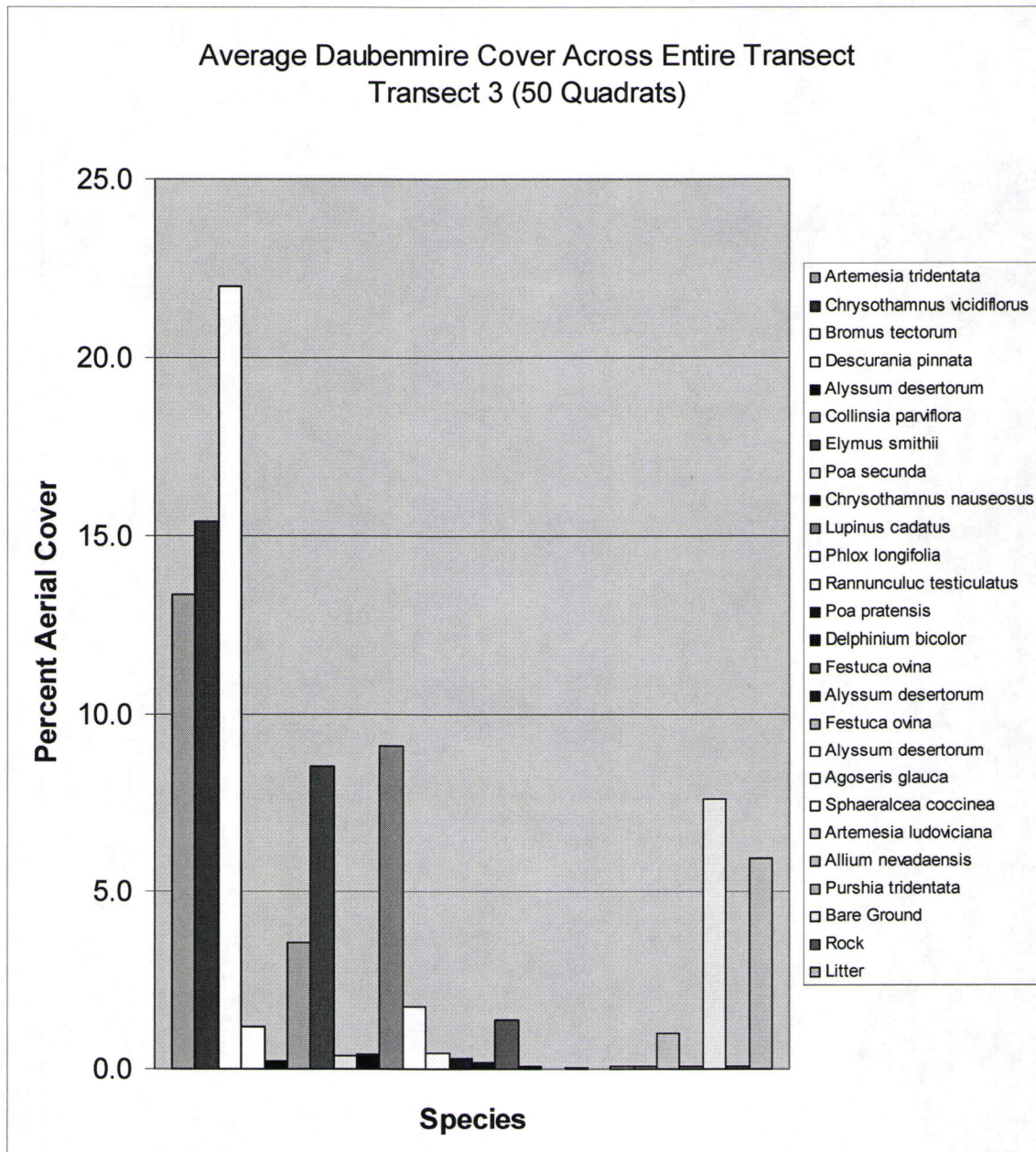
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## Attachment V

### Vegetation Survey Results



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**Attachment V**

**Transect 1 Photos**

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**Attachment V**

**Transect 2 Photos**

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**Transect 3 Photos**

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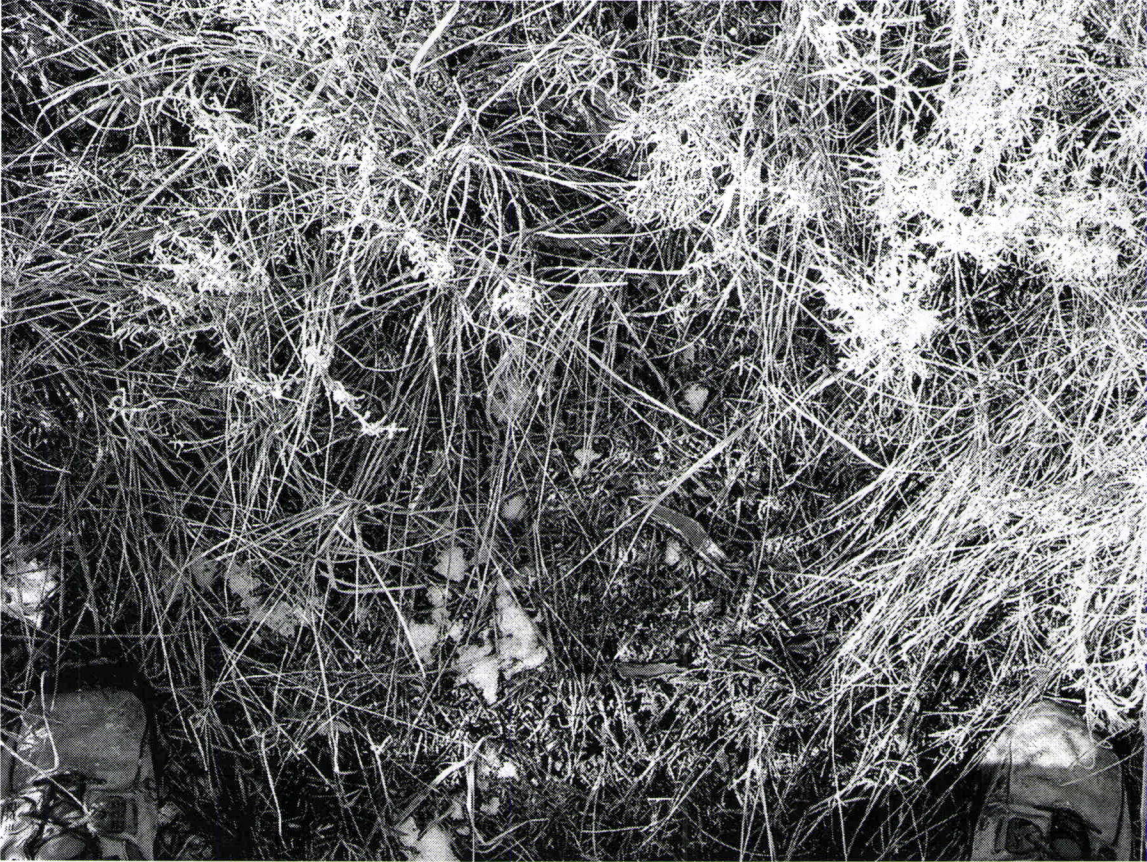
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**ATTACHMENT VI**

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SECTION 02921A

SEEDING  
11/02

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

U.S. DEPARTMENT OF AGRICULTURE (USDA)

AMS Seed Act (1995) Federal Seed Act Regulations Part  
201

1.2 SUBMITTALS

EPA approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the EPA. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Seed Species, Mixtures and Rate; G  
Equipment  
Surface Erosion Control Material; G  
Chemical Treatment Material; G

Manufacturer's literature including physical characteristics, application and installation instructions for equipment, surface erosion control material and chemical treatment material.

A listing of equipment to be used for the seeding operation.

Quantity Check; G

Bag count or bulk weight measurements of material used compared with area covered to determine the application rate and quantity installed.

Maintenance Record; G

Maintenance work performed, area repaired or reinstalled, diagnosis for unsatisfactory stand of grass plants.

Application of Pesticide; G

Pesticide treatment plan with sequence of treatment work with dates and times. The pesticide trade name, EPA registration number, chemical composition, formulation, concentration of original and diluted material, application rate of active ingredients, method of application, area treated, amount applied;

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and the name and state license number of the state certified applicator shall be included.

SD-04 Samples

Delivered Topsoil

Samples taken from several locations at the source as per Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION and the Remedial Action Work Plan, Volume IV, Appendix J.

Mulch

A 10 pound sample.

SD-06 Test Reports

Equipment Calibration

Certification of calibration tests conducted on the equipment used in the seeding operation.

Soil Test

Topsoil Testing: Soil testing shall be per Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION and the Remedial Action Work Plan, Volume IV, Appendix J.

SD-07 Certificates

Seed  
Topsoil  
Mulch  
Non-asphalt Adhesive  
Pesticide

Prior to the delivery of materials, certificates of compliance attesting that materials meet the specified requirements. Certified copies of the material certificates shall include the following:

- a. Seed. Classification, botanical name, common name, percent pure live seed, minimum percent germination and hard seed, maximum percent weed seed content, and date tested.
- b. Topsoil. As required by Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION and the Remedial Action Work Plan, Volume IV, Appendix J.
- c. Mulch: Composition and source.
- d. Non-asphalt Adhesive: Composition.
- e. Pesticide. EPA registration number and registered uses.

1.3 SOURCE INSPECTION

The source of delivered topsoil shall be subject to inspection.

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1.4 DELIVERY, INSPECTION, STORAGE, AND HANDLING

1.4.1 Delivery

1.4.1.1 Delivered Topsoil

Soil tests shall be provided for topsoil delivered to the site as per Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION and the Remedial Action Work Plan, Volume IV, Appendix J.

1.4.1.2 Soil Amendments

Refer to Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION for specifications and requirements for soil amendments.

1.4.1.3 Pesticides

Pesticide material shall be delivered to the site in the original, unopened containers bearing legible labels indicating the EPA registration number and the manufacturer's registered uses.

1.4.2 Inspection

Seed shall be inspected upon arrival at the job site for conformity to species and quality. Seed that is wet, moldy, or bears a test date five months or older, shall be rejected. Other materials shall be inspected for compliance with specified requirements. The following shall be rejected: open soil amendment containers or wet soil amendments; topsoil that contains slag, cinders, stones, lumps of soil, sticks, roots, trash or other objectionable material and does not comply with Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION; and topsoil that contains viable plants and plant parts. Unacceptable materials shall be removed from the job site.

1.4.3 Storage

Materials shall be stored in designated areas. Seed, lime, and fertilizer shall be stored in cool, dry locations away from contaminants. Chemical treatment material shall be stored according to manufacturer's instructions and not with seeding operation materials.

1.4.4 Handling

Except for bulk deliveries, materials shall not be dropped or dumped from vehicles.

1.4.5 Time Limitation

Hydroseeding time limitation for holding seed in the slurry shall be a maximum 24 hours.

PART 2 PRODUCTS

2.1 SEED

2.1.1 Seed Classification

State-certified seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for

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percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS Seed Act and applicable state seed laws.

#### 2.1.2 Permanent Seed Species and Mixtures

Permanent seed species and mixtures shall be proportioned by weight as recommended by the State of Utah or other local experts approved by the EPA. Seed species and mixtures shall be submitted for approval by EPA.

#### 2.1.3 Quality

Weed seed shall be a maximum 1 percent by weight of the total mixture.

#### 2.1.4 Seed Mixing

The mixing of seed shall be done by the seed supplier prior to delivery. Large and trashy seed shall be bagged separately from fine seed.

#### 2.2 TOPSOIL

Topsoil shall be placed in compliance with Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION.

#### 2.3 SOIL AMENDMENTS

Refer to Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION for specifications and requirements for soil amendments.

#### 2.4 MULCH

Mulch shall be free from weeds, mold, and other deleterious materials. Mulch materials shall be native to the region.

##### 2.4.1 Straw

Straw shall be stalks from oats, wheat, rye, barley, or rice, furnished in air-dry condition and with a consistency for placing with commercial mulch-blowing equipment.

##### 2.4.2 Hay

Hay shall be native hay, sudan-grass hay, broomsedge hay, or other herbaceous mowings, furnished in an air-dry condition suitable for placing with commercial mulch-blowing equipment.

##### 2.4.3 Wood Cellulose Fiber

Wood cellulose fiber shall not contain any growth or germination-inhibiting factors and shall be dyed an appropriate color to facilitate placement during application. Composition on air-dry weight basis: 9 to 15 percent moisture, pH range from 4.5 to 6.0.

##### 2.4.4 Paper Fiber

Paper fiber mulch shall be recycled news print that is shredded for the purpose of mulching seed.

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## 2.5 WATER

Water shall be the responsibility of the Contractor, unless otherwise noted. Water shall not contain elements toxic to plant life.

## 2.6 PESTICIDE

Pesticide may be applied as directed and shall be insecticide, herbicide, fungicide, nematocide, rodenticide or miticide. For the purpose of this specification, a soil fumigant shall have the same requirements as a pesticide. The pesticide material shall be EPA registered and approved.

## 2.7 SURFACE EROSION CONTROL MATERIAL

Surface erosion control material shall be applied as defined in the Erosion Control Plan and as directed by the EPA. Surface erosion control material shall conform to the following:

### 2.7.1 Surface Erosion Control Blanket

Blanket shall be machine produced mat of wood excelsior formed from a web of interlocking wood fibers; covered on one side with either knitted straw blanket-like mat construction; covered with biodegradable plastic mesh; or interwoven biodegradable thread, plastic netting, or twisted kraft paper cord netting.

### 2.7.2 Surface Erosion Control Fabric

Fabric shall be knitted construction of polypropylene yarn with uniform mesh openings 3/4 to 1 inch square with strips of biodegradable paper. Filler paper strips shall have a minimum life of 6 months.

### 2.7.3 Surface Erosion Control Net

Net shall be heavy, twisted jute mesh, weighing approximately 1.22 pounds per linear yard and 4 feet wide with mesh openings of approximately 1 inch square.

### 2.7.4 Surface Erosion Control Chemicals

Chemicals shall be high-polymer synthetic resin or cold-water emulsion of selected petroleum resins.

### 2.7.5 Hydrophilic Colloids

Hydrophilic colloids shall be physiologically harmless to plant and animal life without phytotoxic agents. Colloids shall be naturally occurring, silicate powder based, and shall form a water insoluble membrane after curing. Colloids shall resist mold growth.

### 2.7.6 Erosion Control Material Anchors

Erosion control anchors shall be as recommended by the manufacturer.

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PART 3 EXECUTION

3.1 INSTALLING SEED TIME AND CONDITIONS

3.1.1 Seeding Conditions

Seeding operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped when directed. When special conditions warrant a variance to the seeding operations, proposed alternate times shall be submitted to the EPA for approval.

3.1.2 Equipment Calibration

Immediately prior to the commencement of seeding operations, calibration tests shall be conducted on the equipment to be used. These tests shall confirm that the equipment is operating within the manufacturer's specifications and will meet the specified criteria. The equipment shall be calibrated a minimum of once every day during the operation. The calibration test results shall be provided within 1 week of testing.

3.1.3 Soil Test

Delivered topsoil, existing soil in smooth graded areas, and stockpiled topsoil shall be tested in accordance with Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION and the Remedial Action Work Plan, Volume IV, Appendix J. Sample collection on site shall be random over the entire site. Sample collection for stockpiled topsoil shall be at different levels in the stockpile. The soil shall be free from debris, noxious weeds, toxic substances, or other materials harmful to plant growth. The test shall determine the quantities and type of soil amendments required to meet local growing conditions for the seed species specified.

3.2 SITE PREPARATION

3.2.1 Finished Grade and Topsoil

The Contractor shall verify that finished grades are as indicated in the specifications, and the placing of topsoil, smooth grading, and other requirements have been completed in accordance with Section 02300A EARTHWORK and Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION, prior to the commencement of the seeding operation.

3.2.2 Application of Soil Amendments

Soil amendments to be applied according to application requirements defined in Section 02140A SELECT FILL AND TOPSOIL FOR RESIDENTIAL REMEDIATION.

3.2.3 Tillage

Soil on slopes up to a maximum 3-horizontal-to-1-vertical shall be tilled to a minimum 6 inch depth. On slopes between 3-horizontal-to-1-vertical and 1-horizontal-to-1 vertical, the soil shall be tilled to a minimum 2 inch depth by scarifying with heavy rakes, or other method. Rototillers or other approved equipment shall be used where soil conditions and length of slope permit. On slopes 1-horizontal-to-1 vertical and steeper, no tillage is required. Drainage patterns shall be maintained as indicated on drawings. Areas compacted by construction operations shall be completely

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pulverized by tillage to a depth of 6 inches. Soil used for repair of surface erosion or grade deficiencies shall conform to topsoil requirements and be tilled prior to seeding. The pH adjuster, fertilizer, and soil conditioner may be applied during this procedure.

#### 3.2.4 Prepared Surface

##### 3.2.4.1 Preparation

The prepared surface shall be a maximum 1 inch below the adjoining grade of any surfaced area. New surfaces shall be blended to existing areas. The prepared surface shall be completed with a light raking to remove debris.

##### 3.2.4.2 Lawn Area Debris

Debris and stones over a minimum 5/8 inch in any dimension shall be removed from the surface.

##### 3.2.4.3 Field Area Debris

In non-residential areas, debris and stones over a minimum 1.5 inch in any dimension shall be removed from the surface.

##### 3.2.4.4 Protection

Areas with the prepared surface shall be protected from compaction or damage by vehicular or pedestrian traffic and surface erosion.

#### 3.3 INSTALLATION

Prior to installing seed, any previously prepared surface compacted or damaged shall be reworked to meet the requirements of paragraph 3.2 SITE PREPARATION. Seeding operations shall not take place when the wind velocity will prevent uniform seed distribution.

##### 3.3.1 Installing Seed

Seeding method shall be Hydroseeding. In non-residential areas or areas larger than one acre, drill seeding or broadcast seeding is allowed. Seeding procedure shall ensure even coverage. Gravity feed applicators, which drop seed directly from a hopper onto the prepared soil, shall not be used because of the difficulty in achieving even coverage, unless otherwise approved. Absorbent polymer powder shall be mixed with the dry seed at the rate recommended by the manufacturer.

##### 3.3.1.1 Rolling

The entire area shall be firmed with a roller not exceeding 90 pounds per foot roller width. Slopes over a maximum 3-horizontal-to-1 vertical shall not be rolled. Areas seeded with seed drills equipped with rollers shall not be rolled. In non-residential areas or areas larger than one acre, rolling is not required.

##### 3.3.2 Hydroseeding

Seed shall be mixed to ensure broadcast at the rate specified in the Quality Control Plan. Seed and fertilizer shall be added to water and thoroughly mixed to meet the rates specified. The time period for the seed

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to be held in the slurry shall be a maximum 24 hours. Wood cellulose fiber mulch and tackifier shall be added at the rates recommended by the manufacturer after the seed, fertilizer, and water have been thoroughly mixed to produce a homogeneous slurry. Slurry shall be uniformly applied under pressure over the entire area. The hydroseeded area shall not be rolled.

### 3.3.3 Drill Seeding

Contractor shall propose seeding rates for EPA approval. Contractor shall load the seed drill with the Respondent oversight representative present. The drill depth for native species shall be 0.25 inches to 0.50 inches. Seeding shall take place along the contours. Seed drills shall be calibrated to the seeding rates approved. Seeding shall be accomplished as recommended by the Utah Practical Guide to Reclamation in Utah.

### 3.3.4 Broadcast Seeding

Areas that cannot be drill seeded due to inaccessibility of the equipment shall be broadcast seeded. Broadcast seeding can be completed by a spin spreader, hand casting and hydroseeding. Contractor shall propose seeding rates for EPA approval. Broadcast rates shall be at 2 times the drill seeding rates. Hand cast or spin spread broadcast seed shall be uniformly raked into the soil as directed. Seed shall be covered to a maximum 1/4 inch depth.

### 3.3.5 Mulching

#### 3.3.5.1 Hay or Straw Mulch

Hay or straw mulch shall be spread uniformly at the rate of 2 tons per acre. Mulch shall be spread by hand, blower-type mulch spreader, or other approved method. Mulching shall be started on the windward side of relatively flat areas or on the upper part of steep slopes, and continued uniformly until the area is covered. The mulch shall not be bunched or clumped. Sunlight shall not be completely excluded from penetrating to the ground surface. All areas installed with seed shall be mulched on the same day as the seeding. Mulch shall be anchored immediately following spreading. Anchoring shall be by mechanical crimping into the soil or by other methods approved by the EPA.

#### 3.3.5.2 Mechanical Crimping

Straw mulch shall be crimped by mechanical means by use of a mulch crimping disk. The disk shall anchor the mulch into the soil by pressing the stems of straw into the soil a minimum of 1.0 inch. Mulch crimping shall be completed along the contour using a minimum of two passes.

#### 3.3.5.3 Non-Asphaltic Tackifier

Hydrophilic colloid shall be applied at the rate recommended by the manufacturer, using hydraulic equipment suitable for thoroughly mixing with water. A uniform mixture shall be applied over the area.

#### 3.3.5.4 Wood Cellulose Fiber, Paper Fiber, and Recycled Paper

Wood cellulose fiber, paper fiber, or recycled paper shall be applied as part of the hydroseeding operation. The mulch shall be mixed and applied in accordance with the manufacturer's recommendations.

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### 3.3.6 Watering Seed

Watering shall be started immediately after completing the seeding of a residential area. Water shall be applied to supplement rainfall at a rate sufficient to ensure moist soil conditions to a minimum 1 inch depth in all areas. Run-off and puddling shall be prevented in all areas water is applied. Watering trucks shall not be driven over seeded areas, unless otherwise directed. Watering of other adjacent areas or plant material shall be prevented.

## 3.4 SURFACE EROSION CONTROL

### 3.4.1 Surface Erosion Control Material

Where indicated or as directed, surface erosion control material shall be installed in accordance with manufacturer's instructions. Placement of the material shall be accomplished without damage to installed material or without deviation to finished grade.

## 3.5 QUANTITY CHECK

For materials provided in bags, the empty bags shall be retained for recording the amount used. For materials provided in bulk, the weight certificates shall be retained as a record of the amount used. Material certifications shall be provided to EPA prior to usage. The amount of material used shall be compared with the total area covered to determine the rate of application used. Differences between the quantity applied and the quantity specified shall be adjusted as directed.

## 3.6 APPLICATION OF PESTICIDE

If application of a pesticide becomes necessary to remove a pest or disease, a pesticide treatment plan shall be submitted and coordinated with the installation pest management program.

### 3.6.1 Technical Representative

The certified installation pest management coordinator shall be the technical representative, and shall be present at all meetings concerning treatment measures for pest or disease control. They may be present during treatment application.

### 3.6.2 Application

A state certified applicator shall apply required pesticides in accordance with EPA label restrictions and recommendations. Clothing and personal protective equipment shall be used as specified on the pesticide label. A closed system is recommended as it prevents the pesticide from coming into contact with the applicator or other persons. Water for formulating shall only come from designated locations. Filling hoses shall be fitted with a backflow preventer meeting local plumbing codes or standards. Overflow shall be prevented during the filling operation. Prior to each day of use, the equipment used for applying pesticide shall be inspected for leaks, clogging, wear, or damage. Any repairs are to be performed immediately. A pesticide plan shall be submitted.

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### 3.7 RESTORATION AND CLEAN UP

#### 3.7.1 Restoration

Existing turf areas, pavements, and facilities that have been damaged from the seeding operation shall be restored to original condition at Contractor's expense.

#### 3.7.2 Clean Up

Excess and waste material shall be removed from the seeded areas and shall be disposed offsite. Adjacent paved areas shall be cleaned.

### 3.8 PROTECTION OF INSTALLED AREAS

Immediately upon completion of the seeding operation in an area, the area shall be protected against traffic or other use by erecting barricades and providing signage as required, or as directed.

### 3.9 SEED ESTABLISHMENT PERIOD

#### 3.9.1 Commencement

The seed establishment period to obtain a healthy stand of grass plants shall begin on the day of seeding.

#### 3.9.2 Satisfactory Stand of Grass Plants

Grass plants shall be evaluated for species and health when the grass plants are a minimum 1 inch high.

##### 3.9.2.1 Lawn Area

A satisfactory stand of grass plants from the seeding operation for a lawn area shall be a minimum 100 grass plants per square foot. Bare spots shall be a maximum 6 inches square. The total bare spots shall be a maximum 2 percent of the total seeded area.

##### 3.9.2.2 Field Area

Grass stands in non-residential areas or areas larger than one acre are considered satisfactory if they are comparable to analogous off-site areas.

-- End of Section --



**ATTACHMENT VII**

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**Eureka Mills Superfund Site  
Lime Peak Quarry Restoration Estimate**

|   | Location   | Quarry  | Processing Area | Roads   | Comment  |
|---|--|---------|-----------------|---------|--|
|   | Area (acres)   | 8.8     | 12.6            | 0.3     |  |
| 1 | Clean-up and removal of structures   | \$500   | \$500           | \$0     | Items to be removed during this task include the concrete pad, fuel cell, the rock check dam, silt fence, water line and water tower, and delineation fence. The time required for this work should be approximately 1 day for a loader w/ operator and a field technician.              |
| 2 | Grading and contouring   | \$4,500 | \$8,000         | \$0     | This task includes regrading and contouring the processing area and the quarry to achieve the required slopes and to promote proper drainage. In addition, ripping of the processing area prior to backfill is included in this task.  |
| 3 | Soil material redistribution and backfill  | \$0     | \$25,160        | \$2,000 | In the processing area, this task includes the replacement of the topsoil previously stripped from the area, and hauling and distributing additional topsoil to achieve 12" depth throughout. For roads that will be reclaimed, this task will include soil replacement with a trackhoe. |
| 4 | Revegetation (preparation, seeding, mulching)  | \$0     | \$0             | \$0     | Costs for revegetation are included in Task 11.  |
| 5 | Safety gates, berms, barriers, signs, etc.   | \$0     | \$0             | \$0     | Costs for removing these items are included in Task 1.   |
| 6 | Demolition, removal or burial of facilities/structures, regrading/ripping of facilities areas. | \$0     | \$0             | \$0     | Costs associated with this task have been included in Tasks 1 and 2.   |
| 7 | Regrading, ripping of waste dump tops and slopes   | \$0     | \$0             | \$0     | Task 2 contains costs for any regrading of waste materials in the quarry. No ripping will be done in the quarry.   |
| 8 | Regrading/ripping stockpiles, pads and other compacted areas                                   | \$0     | \$0             | \$0     | Costs for these items are contained in Task 2.   |
| 9 | Ripping pit floors and access roads  | \$0     | \$1,500         | \$1,000 | In the processing area, this task includes ripping to a depth of 6 inches after topsoil placement is complete. For roads to be reclaimed, this task includes ripping the road after soil replacement.  |



**Eureka Mills Superfund Site  
Lime Peak Quarry Restoration Estimate**

|    | Location  | Quarry         | Processing Area | Roads          | Comment  |
|----|---|----------------|-----------------|----------------|--|
|    | Area (acres)  | 8.8            | 12.6            | 0.3            |  |
| 10 | Drainage reconstruction                               | \$0            | \$0             | \$0            | Drainage reconstruction is not required. Costs for providing proper drainage in the processing area is included in Task 2.   |
| 11 | Mulching and seeding the affected areas.              | \$0            | \$18,300        | \$4,575        | The quarry area will not be seeded. Roads to be reclaimed and the processing area will be broadcast seeded and mulched. The split of the costs is \$3,375 for seeding and \$19,500 for placing the mulch.  |
| 12 | General site clean up and removal of trash and debris | \$500          | \$1,000         | \$500          | This task includes any general site cleanup and any punchlist items identified in the final inspection by the Corps of Engineering and the EPA.  |
| 13 | Removal/disposal of hazardous materials               | \$0            | \$0             | \$0            | The only hazardous material that may be stored/used is fuel. Costs associated with removal of the fuel pad are included in Task 1.   |
| 14 | Equipment mobilization.                               | \$1,500        | \$1,500         | \$0            | The equipment needed for the reclamation includes a 960 loader, a D-6 bulldozer, a trackhoe, and two 10 yard trucks. This equipment will most likely be available on the Eureka project at the time of reclamation, so mobilization costs should be minimal. If required to be obtained from local vendors, the cost is approximately \$250 to \$500 per piece of equipment. We have included the costs to mobilize and demobilize 3 pieces of heavy equipment using the high end of this estimated range. |
|    | Subtotal  | \$7,009        | \$55,973        | \$8,075        |  |
| 15 | Supervision during reclamation                        | \$701          | \$5,597         | \$808          | Equals 10% of the subtotal of the reclamation costs.   |
|    | <b>Total</b>  | <b>\$7,710</b> | <b>\$61,570</b> | <b>\$8,883</b> | <b>\$78,162</b>  |

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